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ABSTRACT

Testimony and prepared statements on child fitness and health in the United States were presented at this hearing. Physical fitness experts testified on: (1) the potential dangers faced by physically unfit children; (2) the connection between obesity and cardiovascular diseases; (3) the role of physical education and athletics in keeping children fit; (4) the importance of nutrition education in the schools; (5) testing for physical fitness; and (6) the role of the school in health education. Statistical data on physical fitness and the American child are included. (JD)

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S. HRG. 99-267

CHILD HEALTH AND FITNESS

HEARING

BEFORE THE

SUBCOMMITTEE ON CHILDREN, FAMILY, DRUGS AND ALCOHOLISM

OF THE

COMMITTEE ON LABOR AND HUMAN RESOURCES UNITED STATES SENATE

NINETY-NINTH CONGRESS

FIRST SESSION

ON

EXAMINING PROBLEMS CONFRONTING THE PHYSICAL CONDITION OF OUR CHILDREN AND WAYS TO HELP THEM

SEPTEMBER 24, 1985

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CHILD HEALTH AND FITNESS

TUESDAY, SEPTEMBER 24, 1985

U.S. SENATE, SUBCOMMITTEE ON CHILDREN, FAMILY, DRUGS AND ALCOHOLISM, OF THE COMMITTEE ON LABOR AND HUMAN RESOURCES,

Washington, DC.

The committee met, pursuant to notice, at 10:07 a.m., in room SD-562, Dirksen Senate Office Building, Senator Paula Hawkins (chairman of the subcommittee) presiding.

Present: Senators Hawkins and Grassley.

OPENING STATEMENT OF SENATOR HAWKINS

Senator HAWKINS. Good morning. We welcome you to the subcommittee hearing today on child fitness and health.

Today, we are going to hear testimony from a wide variety of sources on the potential dangers faced by physically unfit children.

Currently, as many as 20 million young people in this country are deemed overweight. At one time, this fact might have created visions of happy, roly-poly kids, the healthy final product of heaping portions of Mom's cooking and plateloads of Grandma's cookies. But today we know enough to know that this is terribly misleading.

Fat kids are not necessarily happy kids, and fat kids are not healthy kids. Our concern is not based solely on aesthetics, the ideal of a slim, trim body. We are concerned about the health effects of not being fit. Recent studies indicate that overweight children face an increased risk of heart disease, the single largest killer of Americans today.

We are fortunate to have David Harsha, of the Louisiana State University Medical Center, and Dr. Richard Schieken, of the American Heart Association, here to testify on the connection between obesity and cardiovascular diseases.

American children are not only flabby, they are in poor physical shape, and it is little wonder. The average little person in this country spends approximately 13 hours a week participating in some form of sports or exercise, which might sound like a lot. Unfortunately, this same child wastes three to four times that amount of time watching television or playing with the omnipresent video machines.

Dr. Ash Hayes, of the President's Council on Physical Fitness and Sports, and Nancy Hogshead, a gold medal-winning Olympic athlete, will testify about the role of physical education and athletics in keeping our Nation's children fit.

At this time we will receive for the record statements submitted by several Senators, including Senator Grassley who will have to

leave us shortly to attend another hearing with the Finance Committee.

[The prepared statement of Senators Hatch, Grassley, and Kerry, follow:]

Statement of Orrin G. Hatch
for
Hearing on Child Health and Fitness
September 24, 1985

I would like to commend Senator Hawkins for holding this hearing, bringing attention to an important health promotion activity which can improve the lives our our nation's children.

Physical fitness and personal health, including proper diet and weight control, must be promoted during childhood in order to guarantee healthy and full lives for later years. According to a study released on October 16, 1984, by the U.S. Department of Health and Human Services, American children and adolescents are not developing the fitness skills necessary to maintain healthy bodies and cardio-respiratory systems in adulthood.

These findings concern me. More than 80 percent of the physical activity of students was performed outside school physical education classes. Keeping this percentage in mind, it is obvious that we need better fitness programs in our schools to promote basic exercise skills.

Health education in our schools is essential to help our youngsters establish healthy lifestyles for themselves. This training cannot begin early enough, and the curriculum needs to be vigorous. The American Heart Association, in realizing the importance of health education for pre-school children has developed a heart health program designed for three, four, five and six year olds. This program is called the Heart Treasure Chest. The Curriculum consists of three special teaching units called: "The Work of the Heart and Ways to Tell if It's Healthy", "Physical Activity and Rest", and "Heart and Healthy Foods." Training aids for volunteers and classroom teachers are included in the program package.

This program is a wonderful way to make health education fun for children. Learning materials such as stethoscopes, posters, games, and film strips are visually stimulating for pre-school aged children. We need more youth programs such as the Heart Treasure Chest, to be implemented during the years that children begin developing their life style habits.

Another innovative school-based health education program called "Know Your Body". KYB was designed by the American Health Foundation to promote good health habits in students. This program was devised in 1975 and is being conducted in various locations throughout the United States.

KYB's philosophy is to encourage children to take greater responsibility for their own health decisions by learning how to set realistic goals. The program stresses that when children can identify adult disease risk factors then the chances of them occuring during adulthood are reduced. By encouraging our youth to live healthier lives, there is hope for healthier future generations.

STATEMENT OF SENATOR CHARLES E. GRASSLEY

SEPTEMBER 24, 1985 - "CHILD HEALTH AND FITNESS"
SUBCOMMITTEE ON CHILDREN, FAMILY, DRUGS & ALCOHOLISM

MOST OF US ARE PAINFULLY AWARE OF THE PERSONAL AND FAMILY TRAUMA THAT FOLLOWS THE NEWS THAT SOMEONE CLOSE TO US HAS HEART DISEASE. THE COSTS CAN BE OVERWHELMING AND IN AN AGE OF EXPONENTIAL INCREASES IN FISCAL OUTLAYS FOR MEDICAL CARE, ALL OF US ARE AFFECTED. PREVENTION IS NOT ONLY GOOD HEALTH FOR FAMILIES, IT IS GOOD HEALTH FOR THE MEDICAL CARE INDUSTRY.

PROPER CONCERN FOR INFORMED DECISION MAKING IN FOOD SELECTION, EXERCISE, AND I MIGHT ADD ALCOHOL AND TOBACCO ABUSE WILL DECREASE THE LIKELIHOOD OF DEBILATORY AND EXPENSIVE DISEASES.

I AM ENCOURAGED THAT TODAY'S HEARING IS DESIGNED TO PROMOTE GREATER ATTENTION ON GOOD HEALTH, BEGINNING AT THE CHILDHOOD LEVEL. IF STATISTICS ARE AVAILABLE THAT DEMONSTRATE THE IMPORTANCE OF CHILD FITNESS AND HEALTH, I WOULD LIKE TO HEAR THEM SUMMARIZED AT THIS HEARING.

I AM CERTAIN THAT SOWING THE SEEDS OF GOOD HEALTH HABITS WHILE CHILDREN ARE SCHOOL-AGED WILL PRODUCE AN ABUNDANT HARVEST FOR YEARS TO COME.

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STATEMENT OF SENATOR JOHN F. KERRY
BEFORE THE SUBCOMMITTEE ON CHILDREN, FAMILY, DRUGS, AND ALCOHOLISM
ON CHILD FITNESS AND HEALTH
SEPTEMBER 24, 1985

GOOD MORNING. I WOULD LIKE TO WELCOME OUR DISTINGUISHED EXPERTS IN THE FIELD OF HEALTH AND NUTRITION. IN PARTICULAR I WOULD LIKE TO WELCOME BONNIE PRUDDEN A RESIDENT OF MASSACHUSETTS WHO HAS BEEN A PIONEER IN THE AREA OF PHYSICAL FITNESS AND NUTRITION FOR OVER THIRTY YEARS. BONNIE'S LONG STANDING COMMITMENT AND HARD WORK LED TO THE FIRST AMERICAN FITNESS TEST IN THE 1950'S AND THE ESTABLISHMENT BY PRESIDENT EISENHOWER OF THE HIGHLY ACCLAIMED PRESIDENT'S COUNCIL ON YOUTH FITNESS. I WANT TO COMMEND BONNIE FOR HER DEDICATION OVER THE YEARS ON AN ISSUE OF VITAL IMPORTANCE TO THE FUTURE FITNESS AND WELL BEING OF OUR NATION'S CHILDREN.

RECENT EVIDENCE SUGGESTING THAT A GROWING NUMBER OF AMERICAN CHILDREN AND ADOLESCENTS ARE OVERWEIGHT, HAS HASTENED HEALTH PROFESSIONALS TO TAKE A CLOSE LOOK AT THE FUTURE HEALTH IMPLICATIONS OF OBESITY IN OUR CHILDREN. ACCORDING TO FINDINGS AT A CONFERENCE SPONSORED BY THE NATIONAL INSTITUTE OF HEALTH LAST FEBRUARY, A STRONG CORRELATION EXISTS BETWEEN OBESITY AND ADVERSE EFFECTS ON HEALTH AND LONGEVITY. THE CONFERENCE CONCLUDED THAT OBESITY IS CLEARLY ASSOCIATED WITH CARDIOVASCULAR HYPERTENSION, HIGH CHOLESTEROL, INCREASED PREVALENCE OF DIABETES AND A HIGHER INCIDENCE OF CERTAIN

TYPES OF CANCER. THESE FINDINGS REFLECT A GROWING NEED FOR SOCIETY TO PAY SPECIAL ATTENTION TO ELIMINATING OBESITY IN OUR NATION'S CHILDREN.

OUR SCHOOL SYSTEMS ARE BEST EQUIPPED TO TAKE THE LEAD IN THIS CRUCIAL AREA. AS A PARENT AND LEGISLATOR I STRONGLY ENDORSE THE IDEA THAT WE MUST PLACE GREATER EMPHASIS ON THE IMPORTANCE OF NUTRITIONAL EDUCATION AND PHYSICAL FITNESS IN THE FORMATIVE SCHOOL YEARS. AS A MEDIA ORIENTED SOCIETY, WE SHOULD ALSO ENCOURAGE TELEVISION NETWORKS TO PROMOTE QUALITY PROGRAMMING AND RESPONSIBLE ADVERTISING AIMED AT EDUCATING OUR CHILDREN. TELEVISION IS THE MEDIA THAT REACHES OUR NATION'S YOUTH, AND IT OFFERS LIMITLESS CREATIVE POSSIBILITIES FOR TEACHING OUR CHILDREN GOOD EATING HABITS, PHYSICAL FITNESS AWARENESS, AND GENERAL HEALTH EDUCATION.

THERE EXISTS A TREMENDOUS NEED FOR NUTRITIONAL EDUCATION AND INCREASED HEALTH AWARENESS AMONG AMERICA'S CHILDREN.

I AM LOOKING FORWARD TODAY TO HEARING FROM OUR EXPERT WITNESSES AND THEIR VALUABLE INSIGHT INTO HOW BEST TO ACHIEVE A HEALTHIER, MORE NUTRITIONALLY CONSCIENTIOUS POPULATION OF AMERICAN CHILDREN AND ADOLESCENTS.

Senator HAWKINS. Our first panel will consist of two witnesses who are nationally known as experts on fitness—Richard Simmons and Bonnie Prudden, who have spent their lives working to alert people of all ages and all walks of life about the need for fitness.

Richard, I know you are on a very tight schedule; I saw you earlier this morning on "Good Morning, America," and know that you need to leave early in order to make your plane to Boston, so we will ask you and Bonnie to come to the table.

Richard Simmons has been referred to as "the clown prince of fatness" and "the weight saint" because of the humor and laughter he utilizes to get his physical fitness message spread around the world. But despite the humor he brings to his fitness programs and shows, he is communicating a very serious message about diet and exercise—a lesson that is based on his personal experiences.

Richard, I welcome you here today and look forward to your statement.

Please proceed.

STATEMENT OF RICHARD SIMMONS, AUTHOR, AND OWNER OF ANATOMY ASYLUMS, AND BONNIE PRUDDEN, AUTHOR AND DIRECTOR, INSTITUTE OF PHYSICAL FITNESS, NEW YORK, NY

Mr. SIMMONS. Thank you.

I was an overweight child. I went to school in New Orleans, LA. There were a lot of problems. I mean, I did not come from an overweight family. My mother and father were not overweight. But I did what everyone else did. I watched television; I bought the candy in the schoolyard.

Being an overweight child is a very devastating experience. And we talk a lot about the heart disease, or the cancer, or the fat cells. I am talking at first strictly on an emotional level. Being an overweight child in the America of yesteryear and today is the same thing. You are ostracized; you are discriminated against.

The exercise programs in most schools are not exercise programs; they are sports. If you are short, if you are overweight, if you are an underdog, and you do not get chosen for those particular teams, then you sit around, eating your lunch as well as everyone else's.

A lot of people in school when I grew up felt that if you were overweight, there was something else wrong—there was Down's Syndrome; there were emotional problems at home; you could have been slightly retarded, or there was a glandular problem—when in essence, the reason that most children are overweight in the United States is because of Mr. Knife and Mr. Fork. I want to see that change.

I travel 300 days a year now. I have 75 exercise studios in 15 States in the United States, and I have a daycare center. So we have 460,000 women with a weight problem, coming 3 to 4 days a week at my Anatomy Asylums.

The children who come to the Anatomy Asylums with their parents, two out of three are obese. They are not exercising. And I really blame this on many things. I think that the parents of today are not very educated. I think they do not know everything that they should know about education and exercise. When I was going to school in the fifties, I did not see my parents take their gym

bags and go to their health club while I went to learn how to read and write. I think things have to change in the eighties.

In 1985, there were more overweight children and teenagers in the United States than in 1975. You would think with the explosion of physical fitness, there would be a big difference.

Going into all these cities that I go into when I travel, I teach exercise and nutrition classes at grammar schools, parochial schools, high schools and colleges, and see that these people really want to learn; that we are not supporting these children in school. We do not give them a recent textbook. Many of the nutrition textbooks that children are reading today were written in the forties and fifties and have not been updated properly. We have got to do that. From the age of first-graders, they should learn about their bodies, they should learn about nutrition. They should learn that the key is exercise, motivation, and nutrition together.

We have to plan a very good exercise program for people in schools, whether they are overweight, whether they are short, whether they are tall, whether they are Jews, whether they are blacks. Every kid in America should be taking an exercise class regardless of whether they are good in football or baseball or basketball. I think if we combine those two, if we give them a good nutrition program, if we give them a good exercise program, maybe in the next 10 or 15 years, we can knock out obesity. But it has got to be done with a sense of humor.

You know as well as I that if you have a teacher, and that teacher has a sense of humor, makes things fun, that child will learn better nutrition habits. If you get too serious, if you get too technical, if you get too wordy, the child will turn around and buy a bag of potato chips.

So what I want to do in the next 10 or 15 years of my life, and with the help of the people here, is I want to make sure that every child who is born knows about exercise, knows about nutrition, and that the parents of these children support that and become good examples.

Thank you.

Senator HAWKINS. That is a great mission in life, and I know you fill it every day. I know that you donate a portion of your royalties from "Never Say You Can't Exercise" to a foundation that will provide exercise facilities for the disabled in hospitals. Is it important to convince disabled children and adults about the need for exercise?

Mr. SIMMONS. The word "disabled," Senator Hawkins, is a very strange word. We are trying to knock out the word "handicapped" and the word "disabled," and we are coming up with "physically and emotionally challenged" people.

In January, I opened the first exercise studio at Orthopedic Hospital. It is an aerobic exercise studio for disabled children and adults. It is free; my foundation pays for everything. All of our teachers are physically challenged people—polio, spinobifidus, cystic fibrosis, muscular dystrophy, cerebral palsy, Down's Syndrome. We think that every child—every child—in the United States should have good exercise and nutrition knowledge.

There are certain areas that we have really kind of ignored. To me, we have ignored the overweight child. We have pointed at

them, we have laughed at them, and remember, that child who is overweight, 90 percent of the time, will grow up to be an overweight adult. We have ignored the senior citizens for exercise. Many people feel, "I have lived my life, I have raised my children; I don't have to exercise." You do have to exercise. I do not care what age you are.

But the third area that we have really not worked on is the disabled community in the United States. They need a certain kind of exercise; the same exercise you would give a kid in grammar school is not the same one you would give to someone in a wheelchair or in braces.

So we took 100 doctors and 53 physical therapists, and we wrote a book called "Reach for Fitness," all the proceeds to go to build exercise studios in 40 hospitals. It is important that every kid in the United States, whether they are walking with braces or walking by themselves, or not walking at all, should have the benefits of a good exercise program and a good nutrition program. It is only going to benefit us as being the strongest country in the world. And because there are so many overweight children, you can imagine how many overweight disabled children there are. The mother believes it is her fault. She gets very depressed because she bore that disabled child. She starts, well, patronizing that child with food, because we still believe in our country that "food is love," and we know that overfeeding a child is devastatingly deathly.

So I think it is important that the disabled children and the disabled adults start to exercise and learn nutrition. I had my audition to choose teachers to teach at my exercise class at the hospital. We put one ad in the paper, and 900 men and women who were disabled came to the auditions to seek a new career, because as you know, if you are disabled in the United States, or anyplace in the United States, it is tougher to get a job, and they feel they are always dependent on the money of the Government. So to open up new exercise facilities and hire disabled people is just the best thing. Why shouldn't they feel whole, too?

Senator HAWKINS. Fantastic thoughts, and you are following them up with good actions.

We have another epidemic going on in America today, of children that want to be too slim, or feel that food will make them too fat. Is there danger of associating slimness with beauty, so that children would lose weight too quickly, or lose the desire altogether of having food and nutrition in their bodies?

Mr. SIMMONS. I work with overweight children, Senator Hawkins, because I was there. These kids today—remember, we live in a very aerobic society; you pick up every magazine, you see only beautiful children eating candy, with no pimples; you see the mother, a size 3, the father, perfect, baking cakes for their kids when you look at magazines. I mean, the food industry is a big industry, and it says you must look a certain way, you must be a certain way. And yes, I work with children who are overweight, and they try to lose weight quickly, because they want to be the American dream.

All my life, I wanted to be the American dream. All I wanted to do was to fit into a normal pair of jeans and to walk down the street, and to be a kid—and I wasn't.

These children, if they lose weight too quickly, it can cause horrible things—stunted growth, depression. It can cause headaches. It can cause this child to feel inferior, be insulted by his peers. The children today should learn to lose weight on a regular basis, just like anybody else.

If a child loses weight too quickly, to be accepted by people, to win an award, to get on a team, that child will suffer in the long run. Whether you are a child or whether you are an adult, you must be educated to learn how to lose weight correctly.

When I was overweight, at the age of 19, I was 268 pounds. I was in Europe. I did 137 commercials and 11 movies. I was very popular as an obese teenager. I lost my weight. A note was put on my car: "Dear Richard, you are very funny, but fat people die young. Please, don't die."

That day, I starved. I lost 123 pounds in less than 3 months. My hair fell out: my skin fell down. I ended up in a hospital. And I promised myself and God that if I were to live a normal life and be healthy, for the first time in my life, that I would dedicate my life to help these people

Children must be taught by their parents not to take the diet pills, not to become anorexic, not to fill up after every meal, in the sake of being thin.

I don't think we should push the word "thin;" we should push the word "healthy."

Senator HAWKINS. Did you ever realize as a young person the health risks of being overweight, or did you just want to look normal?

Mr. SIMMONS. We did not know anything in the fifties. You know, I had bearnaise sauce on my Rice Krispies in New Orleans. I knew nothing about nutrition, you know? I mean, it was bread, it was butter, it was grease. The waiters in New Orleans have a crust on the side of their face; everything is deep-fried. You do not know anything as a child in the fifties.

My book told me that I had four food groups, and I picked out the one I liked—the fat group. That was my friend. We did not know. My mother knew nothing. My mother is 75 now, and for the first time in her life, she has a normal blood pressure, because she watched the red meat, she watched the fried foods, she watched the oils, she watched the grease, she watched the portions of food she was eating.

But now, it is 1985. We are exploding with nutritional information. But sometimes, it is not palatable. Sometimes, that mother who is going to have a child, who lives in Omaha, NE does not know how to feed her kid. She sees television commercials, she hears what other people say, and she feeds her children a certain way. And we must educate that mother to be a better mother and to cook better for her children.

But now we know these things; back in the fifties, we did not know these things as much.

Senator HAWKINS. I think you were quoted as saying that you were the last chosen for an athletic event and the first in line for lunch. Do we put too much emphasis on competitive sports such as football, baseball, basketball, and actually turn off many children

who never would be eligible for those teams, and then turn those children off from exercise of any type?

Mr. SIMMONS. Do you understand the way a male is raised in the United States? If you do not play sports, there is something wrong with you. If you do not bring home a trophy for the top of your father's television set, there is something wrong with you.

We weren't all supposed to be jocks. When I come back in my next life, I will be a football player named "Rock Norton", and I will have affairs with cheerleaders. It did not happen in this life.

To be rejected because of your weight, to be rejected because you are short, to be rejected from all the sports, you were left doing nothing.

When I went to school in New Orleans, Louisiana, you had your choice of football, basketball, and volleyball. Well, football and basketball were out. I decided to be on the volleyball team. But it was all girls. They would not let me. My parents took it to court. I was the only male on the volleyball team at my school, and we won national.

If someone does not choose, as a male or a female, to play a sport, that school should offer an exercise class for them to go to. When a child gets dressed in the morning, he should just get dressed in gym clothes and disregard these little khaki uniforms. When they get to school, they should go to the gym, and for 1 hour, there should be a woman or a man who teaches an exercise class, who knows the body, to teach a 1-hour class to every student in the United States before they go to class. It is a lot more important than some of the courses they take.

After they take that class, they will be more alert, they will get better grades, they will be more physically fit, and the tension and stress from the peers at school will hopefully diminish. It is important that we do this, and it is important that one subject that every school student should take is a nutrition class. They should see what the cholesterol does, they should see what the candy does, they should see what fat does in society.

We have been basically talking about the health of somebody, but you know as well as I, if you were a 300-pound woman, and there was a 300-pound man, and you both went out to get the same job, you would not have a chance in the world, no matter how educated you were. People discriminate against the overweight woman, and children and their peers discriminate against overweight kids. And it has got to stop.

We should never judge anybody, a child or an adult, by what it says on the scale. We should only offer them hope and help, that they can be healthier through a school system that cares.

Senator HAWKINS. Richard, there is a lawsuit in this area that attracted some attention recently. Three men who belonged to a co-ed health club were not permitted to join the club's aerobics class, because the spa considered it a female activity. They had to go to court, like your parents, before they were permitted to participate in the aerobics class. Do you find that there is still prejudice regarding what athletic activities are considered "male" and "female"?

Mr. SIMMONS. Let me tell you why I got into the exercise world, besides finding that there was little sense of humor in most classes.

I went to join my first health club in Los Angeles after I went from 268 down to 137. There was an ad in the paper that offered 2 years for the price of one. I went, and behind me was an obese lady. As I was signing up for membership, so was she. And the man behind the desk said, "Sorry, we are full."

I said, "What do you mean you are full? Why can't this woman come to class here?"

They said, "Well, she is really overweight and out of shape, and we do not want her here."

I decided then that I was going to open up my exercise studios, and that my doors would be closed to no one. Now, again in America, men do not think exercise classes are macho. Lifting weights is macho. Running is considered macho. Going to a gym and swimming is macho.

I could probably take 90 percent of the men in this class and put them through 1 hour, and I would have to have paramedic trucks out in front.

We keep separating things. Every male and every female needs to have a good heart. Every male and every female needs to make sure that their body is getting what it needs to stay in good shape.

And yet, in most of the exercise classes, my members—and we have over 400,000 members—95 percent are women. Men do not believe that it is—men think it is "sissy" to go in and hear music and take an exercise class.

But slowly, it is changing, because the couples of today—we are in a baby boom, which means that a man and woman have to get together and do it They are coming as couples. I now have some of the largest couple classes in the United States—men and woman who say, "Hey, you said 'I do', and I said 'I do', so let's sweat together." That is the American way—not just to eat together and sweat together, but to go to an exercise class together. It is a great commitment to know that the person that you are in love with and the person that you are sleeping with is healthy, too.

But I think it is slowly changing. Men are now seeing that, if they cannot do something, not to reject it, because they go into a class, and Donna Summer is screaming on the stereo, they have to do a 21-minute run, or they have to do their stretches. The men have just as much tension as women. That is what I think an exercise class is, whether it is for a child or for an adult. It takes out the stress, it takes out the aggravation, it takes out the tension. I do not look at exercise as just going, "Hey, look at my pecs."

I do not think that that is why you should be exercising. I think it is crucial that men follow the same exercise classes as women—they cannot do it as good, but they can do it.

Senator HAWKINS. I believe you will be responsible for getting a lot of people to think about it, and, hopefully, to follow through.

This is an age when we are besieged by illegal drugs, when children as young as 6 and 7 say they are using drugs on the school grounds, and can get a "high" from alcohol mixed with pills, et cetera. I've read about a "high" that runners get that causes them, after several miles, to become rather euphoric.

Is the same effect true if your body is in-tune with good nutrition and all parts are operating well, and you are exercising and doing

everything in balance? Can we promise kids a great "high" from being physically fit?

Mr. SIMMONS. Just give me a room, and give me a stereo, and give me 100 kids, and the answer is yes. The reason I think children turn to drugs—there are many reasons—but I think that it is an insecurity and an emotional problem, and I think it is because they do not feel wanted.

It is like years ago, when everybody was smoking, I was too busy making souffles. But as a child, smoking at the age of 8 or 9 was very "in" in my school.

I think that kids today need that comaraderie and teamwork, and not to be put out because of a weight problem, or put out because they are poor, or put out because they are black. I think that most kids today have never reached that fine-tuning of a natural "high," because they have never combined exercise and nutrition properly.

So the answer to that question is absolutely. In every city I go to, I go and visit a high school. And that is hard for me, because remember, I was the fat kid in grammar school and high school that got beat up all the time. So just walking up those stairs and facing 500 kids in a room, who look like Cindy Lauper, is a bit frightening to me. But once the music goes on—and I teach a 45-minute exercise class, and then I teach a 45-minute nutrition program. And I show these kids—I go to autopsies and I take pictures—I show them hearts with fat all over them; I show them overweight people. I do interviews with overweight adults who have gone to college and cannot find a job. And I say to them, If you want to do it right, you combine these three things—the motivation you need for every part of life, the exercise which your body needs, and the nutrition which the inside of your body needs. They will get a natural "high." And the exercise and nutrition programs combined will give them a better high than a drug will ever give them.

Senator HAWKINS. I want you to meet Dr. Ash Hayes before you leave. He is on the President's Council on Physical Fitness. I think you would make a great member of that Council because of your enthusiasm, dynamic success, and dedication.

You have with you a young man that I would like you to introduce, who has a great success story to tell us, also.

Would you like to do that, Richard?

Mr. SIMMONS. Yes.

This is Elijah Jones, who is from Hattisburg, MS. Elijah was 500 pounds.

Senator HAWKINS. 500 pounds?

Mr. SIMMONS. And through good nutrition and exercise—no pills, no shots—Elijah has lost 300 pounds, and now works with me, going to schools, going to colleges, going to grammar schools, telling his story and giving children hope. And I am very proud of him.

The reason I brought him is because everybody can do it. There are not that many children who are 500 pounds. Everybody can lose weight in the right way. Everybody can exercise. There should be no competition. There are no prizes.

So when Elijah can do it—and I travel with 4 or 5 people who have lost anywhere from 100 pounds to 300 pounds—and I say to

the kids, "Please, if you want a candy bar, have it once in a while. You cannot live on carrot sticks and alfalfa sprouts. If you want a cookie, have a cookie once in a while. But your mainstay should be your chicken, your fish, your fruits, your vegetables, the steaming, the grill. Stop with the fried foods."

And these kids—they change. It is as if something happens to them, because someone cares enough to say something to them and make it real. And when they see that people have lost this weight, they know that they can do it, too.

Senator HAWKINS. Do poor kids have the same opportunity?

Mr. SIMMONS. Yes. I was a poor kid. I grew up in an all-black neighborhood in New Orleans, LA. My mother was a Ziegfield Follies girl, out of work; my father was Fred Astaire's double, who could not get a job. We lived in a house that was $25 a month. I was raised next to a praline store—thank God. And I will tell you something. There is not a child—when you hear all of these things, that only the wealthy can buy certain foods, and the poor people can buy certain foods, that is a lot of junk. I mean, I do not care if your parents have money, if you are a poor child or if you are a wealthy child, you have the same opportunities. Salad is cheap.

Senator HAWKINS. What about junk foods. Our young people feel discriminated against if they cannot go to a fast-food restaurant once a week or more. What is the message that we have to get out?

Mr. SIMMONS. We are never going to get rid of that.

Senator HAWKINS. No. That is America.

Mr. SIMMONS. We are sitting in Washington, DC. The food industry is a multibillion-dollar industry. You know that as well as I.

We are never going to get candybars and cookies and cakes off the shelves, and I do not think you should. We just have to reeducate the consumer and maybe reeducate the manufacturers to come up with products that are healthier.

If you read a package of Lean Cuisine, there are 72 items, including sugar, salt, butter, and MSG. But because it is less than 300 calories, at the price of $4, the American consumer buys it.

Food has to be taught to people to be nutritious. It is never going to disappear. We will never have that much power to make all of that disappear We just have to teach children when to eat it, why to eat it, why not to eat it.

Senator HAWKINS. Before you leave, could you give us a word about the senior citizens of America?

Mr. SIMMONS. I have classes—I call them "Silver Citizens". When you reach a certain age, your body changes. What you needed at 20 is different from what you need at 50 or 60.

My senior citizen teachers really program them to eat smaller meals, to do a lot of walking, to swim. I mean, it really depends on the senior citizen.

But at a point when my father died, 3 years ago, a part of my mother died. You don't get married for 50 years and not be devastated when your spouse dies. My mother gained 30 pounds; my mother was lethargic. And I woke her up. We took her to get a physical. She saw her cholesterol level, she saw her heart rate. She saw her triglycerides. She started walking, slowly. I mean, my mother has arthritis, cataracts, just had a breast reduction—the poor woman has gone through a lot.

So we started her walking; then we started her swimming. At 74, my mother received her driver's license. She felt so good about herself, so good about her body, that she decided to start driving again after 4 years.

It is important that every stage of life—your child stage, your adolescent stage, your young audult stage, your middle-age stage, your senior citizen stage—every stage should have an exercise and nutrition program available for these groups. It is imperative. A senior citizen will become more senior if they eat right and exercise on a regular basis.

Senator HAWKINS. Thank you very much, Richard. I know you have another appointment. I just want to commend you for dedicating your life to a happier, healthier America.

Mr. SIMMONS. Thank you very much for having me.

Senator HAWKINS. Our next witness is also very well known in the field of physical fitness and diet. I am pleased to welcome a good friend, Bonnie Prudden, to today's hearing.

Bonnie has worked diligently to alert people of all ages about the need for fitness. She is director of the Institute of Physical Fitness in New York City, lectures widely on this issue, and has helped set up physical fitness programs in nursery schools, kindergartens, elementary schools, high schools, and YMCA's.

Welcome, Bonnie.

Ms. PRUDDEN. Thank you very much.

You are dealing here with somebody who is 71 years old, who has been in this business since she was 4, who came to President Eisenhower in 1955 wiih proof that Americans were not just weak, but were the weakest in the world. They are weaker today than they were in 1955.

Absolutely nothing of substance happened. What did happen did not happen in the schools; it happened in the media. Everybody in the country now knows they have to be fit.

I saw a lot of you cringe when Richard said something about "Lean Cuisine." Cringe again. I will say "aerobics".

What happened in this country was that since nobody knew anything about physical fitness, and the faddists got into the saddle, we immediately got things that have done tremendous damage.

For instance, 50 percent of the 30 million—registered runners, which means mostly men—5 years ago are now unable to run, because of what running on the hard road did to their legs and then eventually, via the legs, to their backs.

We have "aerobic dancers"—40 percent of them are injured, and 80 percent of the teachers are injured, and many of them so badly they cannot do anything at all.

We have machines, which are very unforgiving. You can't speak to the machine, and it can be very hard on you. If you do not know how to handle machines where would you get the information? Owning a spa does not mean knowing about the human body.

Now about physical education, and you have to know that I was in physical education—that was the light of my life, it is lost. When I was a little kid, we really did have gym, but that was secondary to what else we did. We ran to school. We ran home. The idea was to get in the house and get your clothes changed; otherwise, you got a licking—and get out, before somebody sent you to

the store. Now, that was the key to physical fitness, actually. We did not even have a radio. So what did we do? We went out and played "Kick the Can", and climbed trees. I have not seen a kid in a tree in years. I have not heard "Allie, allie, in free" in many years.

Last winter I was down in the Senator's Florida, writing a book, and after school, although there must be 50 kids in the neighborhood; only three of them rode bikes and were out. The rest of them were in with some television show after school.

You go by the schools, and the children are all leaning up against the fence; that is recess. And recess in our day was: beat up the next kid, climb to the top of the school, tie the sashes of the better-dressed kids around trees. Oh, we had a wonderful time. Mumbletypeg off your nose—I have a permanent crease here. It was busy. And so the body was built. And then, you had to walk. You had to walk from the time you were little. They did not have strollers, really, and the kid wanted to get out of those things called prams. So mothers took the children by their hands and walked. There were no supermarket baskets for riding up and down aisles.

What happens today is a kid is born, goes home, gets into a crib. They take it out in the morning, unwrap it, wrap it up, wash it, stick it into clean clothes, put it in a high-chair, stuff it full of food, put it on a toity-seat, where it sits another 20 minutes—little different expression, but there it is—out of the toity-seat and into the baby carriage and out into the fresh air which you cannot find. It comes home at noon, is unwrapped, wrapped again, stuffed into bed, and you hope it will sleep until 3. At 3 o'clock, it comes out of there and goes into the stroller. And by the way, when you go home from here, look who is in strollers. The children are big enough to push their mothers. They get down to the A&P, or whatever you have in your town, and they are lifted into the baskets, and there they sit, reaching, all the way down the aisle. Finally, the mother reaches for something to shove into the child's face, because if there is something in the mouth, no sound comes out. Then both child and groceries go back in the stroller. At home the Oxydol and the oranges go in the bin, and the kid goes in the playpen.

Now, if anybody in this room planning to have a baby, I will tell you what to do with the playpen. You push it into the middle of the room; you babyproof the room, which means you put anything breakable out of the way, you get a good book, and you get in the playpen. You stay in the playpen, and give the kids the room. They crawl around, make noise, bang things, move and build their bodies. And that is how you start kids.

You start newborn babies with exercise for newborns, not in school—that is too late. The first 6 years of life are the most important years. The minute that baby comes out begin the program with "open your arms, close your arms, up with your arms, let's move to the legs." Then, every time you change a diaper, do 2 minutes of exercise. You will get a healthy, happy, relaxed child. Stay away from playpens. It is harder, of course it is. But both mother and baby are the better for it.

When they go to school, they are 6 years old, and the foundation is in place. The whole birth process plus building the basics, can be done well or badly in most nursery schools, it is all cutting and pasting. And you should see them. If they go out, they are like geese. Somebody shoos them out from behind, and they kind of flutter around out there, and then somebody shoos them all back in—and if there is a heavy dew, they will not let them out.

Then they get to first grade. Eighty-five percent of the kids in Palos Verdes in California—(California of all places!) flunk that silly little test that I showed you in this piece of material. That test is a medically valid test. That is health-related; and first used in the 1950's. It tells you something horrendous. The person who cannot pass the test, will almost certainly get back pain. There are four simple tests for abdominal, back and psoas muscles. If you fail two, you are almost assuredly emotionally involved, badly. Now, somebody was talking about the "high" people get from running, and Richard said yes, if the nutrition is right and they exercise. We who are now older were "high" all the time. We rolled down hills, we ran around in the wind. We did not know why we were doing it, we just felt like doing it and it was wonderful. I now believe it was healthy. I do not see kids doing that anymore. They never get the chance to do anything active. They are unfit, unhealthy, and feel badly. How is being unhealthy related to drugs?

If you do not feel good, and somebody offers you something pink, blue, or green, you take it. Maybe you will feel better, or at least, you will feel different.

Alcohol? Alcohol is a lift—kids think. Why do you need a lift? When I was in school, the big deal was to smoke some kind of weed out behind in the backyard. It did not have much in it. It was mostly cornsilk; it was terrible. But of course, then, you got ahold of a cigar and got very sick and got cured. Today kids don't get cured. Bigger kids help them to go on to bigger drugs. Safety lies in feeling good.

But what have we in school? We are now 6 years old, and almost everybody is a mess. The tests that my people did in September and I gave you, were done in a hurry. Just getting into schools was very difficult because classes were just starting The failure rate is up, around 63 percent from 58 percent in the 1950 testing. And the first graders back then had a 54-percent failure. When they got out of school, after 12 years of physical education, they were 52 percent failure. It has not changed for the better.

President Kennedy said, as Richard said, and rightly, we must have physical education every day. Kennedy said 15 mintues a day. That was all he wanted. But where are we going to get the teachers? They do not know how to teach exercise. Why would people go in for aerobic dance, with no warm up, with stretch exercise as warm up? Why would they go in for jumping up and down on cement and ruining their legs and ruining their backs, if they knew a good exercise from a bad one? They do not.

In school, ask any American girl how she likes gym. It used to be, "Yuk." Now, it is "Gross." They hate it. And American girls, as I say to you in this material, menstruate 9 months out of the year, because if you have an excuse that you are menstruating, you do not have to go to gym—which is ridiculous, because it does not

make any difference. But if you go to gym for something you hate, you will escape it if you possibly can.

In the forties and fifties I had tested all over this country and Europe and tests came in from India and Japan and other countries. They merely showed that we were the weakest in the world.

One time I went to Texas. Texas looks great. They were famous for long-legged girls, all in white uniforms. And I was with the superintendent of schools, in an enormous gym. Teenage girls were playing volleyball in several groups, and it looked tremendous. There was lots of noise, people jumping up and down. Wow. It looked like all kinds of action.

One girl had a blue belt on and it set her apart from the white blur. I said, "Watch her." She served once into the net. She got the ball back. She served it over. Somebody spiked it. Somebody slammed it. And she moved over. OK. Each girl had 10 minutes on the court. In the time that that blue-belted girl was on the court, she went out and got the ball three times, she hit the ball once, and then everybody changed. She did virtually nothing, the program was worth virtually nothing. You can get more exercise in the stacks in a high school or college library than you can on the gym floor. You do not even get sweaty enough to take a shower And most marking is done on whether you took the shower and whether your gym suit is clean.

I think you can throw physical education out now. It has not worked in 30 years so I doubt if it will very soon—where your key lies is with the family; where your key lies is the girl, train her and you train her children. We no longer bother with physical education and fitness. We do not even go to a gym class to try and help. We go to home ec classes. We take a newborn baby, or as close to one we can get. A film that I made of underwater babies swimming, and a record of easy exercises, with music. First we show the newborn baby, doing the exercises. All little girls love puppies, birdlings and babies so everybody is very excited about that. Then you show the underwater film, with all the kids swimming, with their eyes open. Then you give them the exercise class, and they almost die at the effort. As Richard said, he could take this group here and give them an exercise class, and they would need paramedics—I am 71; I can do the same things—because there is nothing back of today's young babies. There is nobody there to teach them.

So, you have a bunch of kids coming into school already in need of rehabilitation. What we can give them with what we have now in physical education is recreation. It is a bandaid on a hemorrhage.

We are offering nothing. In Zurich, Switzerland, the kids walk to school and just as Richard suggested, they have an hour of gym—ladders, ropes, running, jumping—no play. They walk home for lunch, by law, for 2 hours and they walk back. After classes, they have soccer. Wednesday, the whole school stops at noon, and everybody goes for skiing or swimming, whatever the season. Once a month, the whole school stops, and every teacher, the superintendent and every kid goes to the mountains for an all-day hike. They care about them and the teachers are trained to develop them.

When I tested in Italy, they were 3 percent better than the Swiss. And the Swiss were so horrified that they opened more parks. They were that little bit worse than the Italians, and they could not stand it. One of our superintendents said—"Well, we are no worse than any other American School!"

We are light-years from Europe, and we knew it in 1955. It was all over America. Everyone was told. And all we have managed to do is make people aware that something must be done. But what we have offered has not been much use.

Senator HAWKINS. So your testimony basically says we are worse off today than we were in the fifties.

Ms. PRUDDEN. We are, we are, and we know something today that we had not yet proven then, and that is that if you do not have back flexibility and abdominal strength, you will get back pain. And economically, backache is our biggest problem. It costs us more for backache—never mind pain—than any other ailment in this country. And it could be wiped out; it could be absolutely wiped out.

Senator HAWKINS. I know families are responsible for their children, and I hate to put a lot of guilt trips on the parents today.

Ms. PRUDDEN. Yes; but we have not told them what to do.

Senator HAWKINS. That is right. Our responsibility is to give them the proper information and program so that they can start this, as you say in "How to Keep Your Child Fit from Birth to Six"—I notice this was written in 1964.

Ms. PRUDDEN. It was then revised by Dial, and is being revised again right now, by Ballentine.

Senator HAWKINS. And young mothers buy this, grandparents buy this—what do you think is the profile of the buyer?

Ms. PRUDDEN. Grandparents, young mothers. It is a great gift to give somebody when the child is born, because the exercises right after birth are right there.

By the way, Sports Illustrated was very interested at that time in fitness. And we took a little boy right out of Mount Sinai Hospital when he was born. We did pictures of him every month for a whole year for monthy exercise articles. The little boy was trilingual and a fine athlete by the age of 4.

Senator HAWKINS. Trilingual and a fine athlete?

Ms. PRUDDEN. Yes; we made a deal. The mother was Spanish, the father was Parisian French, and they lived in Queens. So the father agreed, if Sports Illustrated paid all their doctor bills, that he would speak only French, the mother would speak only Spanish. The rest was left to Queens, Long Island, so the kid speaks perfect French, perfect Spanish, and talks like a Queens kid from Long Island in English—at age 4. He is now probably 24.

Senator HAWKINS. You mentioned that girls have a bigger responsibility for physical fitness than men.

Ms. PRUDDEN. Well, all over the world, girls are basically better physically. If you test in any country, they fail at a lower rate. Any country that we have ever tested in, at any age, they fail at a lower rate.

Senator HAWKINS. Girls fail at a lower rate?

Ms. PRUDDEN. Girls fail at a lower rate, no matter what. We who are women in this room will always fail at a lower rate than the

men who are our counterparts. One of the reasons is because they are more inflexible than we are. Now, inflexibility comes from stress, and boys seem to be more stressed.

You know, when little girls are born, to their mothers they are merely smaller editions of themselves, but boys are special. And so you take much better care, and you pamper the little boy much more, because he is considered special. The little girl is just another one of us. That is part of it.

The other part of it is the stress and tension of daily living, and the fact that backs become inflexible and their muscles foreshorten.

The second way to ruin the body is by poor coaching, which is almost universal here. Our coaches get a bunch of kids out on the field, and the first thing they do is jumping jacks—the worst thing you can possibly do is jump or run as a warmup. And in this country, they really do not know the difference between a warmup and stretch. They do not know that a warmup is done standing. You stand, you move your arms in every direction so that your heart gets beating faster. When that happens, more blood goes to the extremities, and when you are sweating, you are warm. Then the muscles are pliable, and you can use them for the sport of choice. They are 20 percent more efficient and therefore safer from injury.

Men and boys are not trained to warmup properly so they have already shortened their muscles early.

Girls have the babies. Probably that is one of the reasons nature made them more durable. They have a serious responsibility. The mother sets the pattern. If she moves around, the child moves around. If she takes it by the hand for a walk, it goes for a walk. If she watches television, that is where the child sits—for hours every day.

All my skiing friends have children who ski. If they play tennis, the kids play tennis. If they sit, the kids sit.

Now, once in a while you will get a maverick. That is a wonderful thing to have. The marverick child has to move and goes out and does it on his or her own. I was a maverick with a sedentary mother. My mother pushed me into every dance class, every exercise, anything there was, I think to get rid of me. It is certainly the answer for a hyperactive kid that can't sit still.

Senator HAWKINS. It is very difficult to convince the parent of a big, husky football player, that that child may be physically unfit.

Ms. PRUDDEN. It is not hard for me to convince her at all. Just ask him to lean over and touch the floor, and he will be 8 inches from it. It is not so bad when a 6 footer is 8 inches off the floor, but when you walk through a whole school, as you will see in these tests, and the children are 4 inches off the floor, and they are not 36 inches high themselves, that is bad.

Women understand it. They just have not been told what to do about it. If you start a new baby exercising, the baby is so much stronger, it is so much more delightful. It cries a lot less. It has physical outlets for the stress of confinement.

Senator HAWKINS. The tests that you are describing are in the handout that you gave us?

Ms. PRUDDEN. The Kraus-Weber test.

Senator HAWKINS. Kraus-Weber test.

Ms. PRUDDEN. That was originally a posture test designed at the Presbyterian Hospital in New York City and used for sick kids. I borrowed it from Dr. Kraus to see what I was doing in my exercise classes, and I called up the first day—I had a hundred new kids in the school—and I said 50 percent of these children are failing.

He said I was probably doing the tests wrong. He came and checked. I was not. So I started, and I tested the children in the public schools in Rye, NY, and they had a 56-percent failure. Then I did all the schools in Poughkeepsie, and they had a 59 percent. It came out eventually, with all the public schools we tested and the Y's tested, at 58-percent failure countrywide.

Rural schools came out at 34 percent, but private schools at 21 percent because somebody was paying for and demanding good physical education.

Senator HAWKINS. Tell me a little bit about senior activities. I know we are talking today about physically fit children, but I cannot resist, since I have you here, discussing senior citizens. I represent Florida, where we have an extremely large population of people over 65 who, in many instances, are starting a new life style.

Basically, what would be your advice to someone that had just moved to Florida, is 65 years of age, and starting a new life style?

Ms. PRUDDEN. First, let me say that over-50-year-olds in this country are the last fit Americans. If you are——

Senator HAWKINS. Over-50 are the last fit Americans?

Ms. PRUDDEN. Yes, the last fit Americans. It takes 8 weeks to put an over-50 into really good shape. It takes 2 years to do the same thing for a teenager. The reason is because over-50's all walked to school. Those under 45, stop walking to school almost entirely.

But over 50, we all walked to school. We played outdoors. So the basic body was built and honed. Birth to 6 build basics; 6 to 11 hone that; 11 is when we now start in our schools to do something and it is too late.

I have just finished writing the book—"The Over 50 Crowd"—and the over-50 person is in much better shape, generally speaking, certainly than he or she knows.

You can start then and build again even if you have let yourself go, but you build slowly. The idea—as Richard was saying—is not to become 30 pounds lighter in a month. The idea is not to become an athlete in a month, either.

You begin slowly and work your way up. The smartest thing to do is walk. Now there are all kinds of ways to walk and never with weights in your hands. People who run with weights in their hands eventually get terrible shoulder pain, as bad as computer shoulders.

The older person can be reclaimed. They, too, need nutrition information. As far as the exercise is concerned, we have no problem bringing them along.

I visited at the Osborne home for retired ladies at their request when I was young, and they said, "Could we have an exercise class?" I said "certainly." Thirty of them showed up for class and I did not know what to do with them at first, except to do what I had done for myself as an invalid after a fractured pelvis—exercise in a chair.

Within 2 weeks they were out of the chairs and around the room. Within 8 weeks their failure rate was lower than the Rye High School girls' or boys' failure rate. It only takes 8 weeks at 1 hour a week.

Senator HAWKINS. I was fascinated by some of your written material, stating that we did not need to feel deprived because of a lack of facilities with which to exercise, that steps were probably as valuable as any tool that we could find.

Ms. PRUDDEN. As anything else.

Senator HAWKINS. And you recommended in your book that, if you did not have any steps, go to a public building and go up and down the steps in that building.

Ms. PRUDDEN. I used to do that in a motel in Barbados, and the maids thought we were crazy, but we lost weight.

Senator HAWKINS. Explain about the steps, please.

Ms. PRUDDEN. Well, when you go up and down stairs, for instance, you lift 1 foot-pound for each of yours and let us say you are going up 10 stairs and weight 150, you are lifting 150 foot-pounds, with one leg each step, and when you are coming down, you lower that with each leg. That's 3,000 foot-pounds per flight per leg. All right. You go up one flight of stairs this week, and two flights of stairs every time you need to go up and down next week. We suggest to women who have a habit of putting everything at the bottom of the stairs, carrying it all up at night, go up every time you have an excuse. I used to put my telephone upstairs, and I did not answer the one downstairs. Instead, I ran upstairs to answer the telephone. I always sounded breathless and happy. Put yourself out a little bit. Every time you park the car six blocks from here and walk there you improve your muscles at any age. If we could take the money for school buses and put fenced walkways along the roadside from outlying districts, so that children could ride their bikes, rollerskate and walk safely to school instead of ride, they would get an hour a day of activity they are missing now.

You spend millions on bus maintenance. You spend millions on gasoline. You could put in walkways that would last. Now look what it would do. One-half hour of walking in the morning would release the tensions that the kid was getting at home. One-half hour after school would relieve them after all that sitting time.

If you ever want to know what hell is going to be like, ladies and gentlemen, get on a school bus and you will discover what it is going to be like. Every once in a while you will hear where the darn thing drives on the railroad tracks and gets annihilated. That was not an accident; the driver committed suicide.

Now, if they could walk home after school, two more things would happen here. They could walk home in safety and they could stay after school the way they used to.

You cannot say "You haven't done your homework? OK. Stay after school and do it." Because they have to make the bus. Just walking would be an hour of exercise a day, that's 5 hours a week more than they get today—at no cost.

Children are sitting 17 hours a day and I guarantee you, 99 percent of the kids in this country are not getting sufficient physical education for cardiovascular development or anything else.

It has been said that that applies to 50 percent, but it's not 50 percent. Its 99 percent. We have done studies on movement in gym classes. We used stopwatches training the fastest kid in the room, and one on the slowest.

I watched one kid and clocked it when he moved and I bopped it off when he stopped. Another person was doing the same thing on another child.

There is a 3-minute movement average in this country per class of 45 minutes. Now, when President Kennedy asked for 15 minutes, he thought he was asking for something reasonable. He was not. There is nobody that knows how to teach.

That is not taught in our schools or teacher's colleges. I go there all the time to see what they are learning. They are learning theory. Theory is nice. Theory does not make healthy kids.

If you cannot do a sommersault, do not try to teach kids to do a sommersault with a theoretical lecture. You have to get down and do it. If you really can't, then get someone to teach it who can.

You want to teach a kid to stand on his head? Stand on your head. He will stand on his head. Any of you who ski in this room know that if you want to learn to ski, get behind a good skiier and ski behind him. That is all you have to do. Discursions lead nowhere with children.

Teach by example. What we do not have in this country is leadership. We have no leaders, starting way up there, in the teacher's colleges.

Senator HAWKINS. You understand that you are treading very tenderly around this city, where everyone fights over status, such as how near your parking place is to your office.

Ms. PRUDDEN. I do.

Senator HAWKINS. And I am fascinated by the numbers of young staff members that I see every morning waiting for the elevator to go up to wherever they are going, with their gym bag in their hand, and the steps are near by.

Ms. PRUDDEN. Yes. A paradox. Well, we tell all doctors to always take to the stairs. Medical people are at the greatest risk, physically, of any group in the country. Computers, right after that.

But medicos are in the worst shape. Ninety percent of all nurses have back pain and one reason is they walk on cement all the time. Doctors have to stand on cement too, so they are in great danger as well.

Leave the elevators to the patients. Take the stairs, always. And they really are beginning to do it, because they are starting to see that it is not the golf game, or the tennis game, or even the swim at the end of the day or the end of the week, that is going to do the job.

It is going to be something you have to do all day long. For instance, if you work at a computer, the simple business of doing arm rotations every time you finish one single job will prevent the pain in the shoulder that hits at 4 o'clock, but it has to be done every hour.

Senator HAWKINS. I read with interest last week that one large company has now retained a therapist and a choice is offered of a coffee break, or a 15-minute therapy session for those that work at

computers. That may be a signal that someone in the company understands the need.

Ms. PRUDDEN. They understand the need. They understand the need but not the answer.

Senator HAWKINS. Well, I must commend you for being a pioneer in this field of fitness. I had several staff members come up to me after they saw your name as a witness, and said they were coming to the hearing because they had enrolled children in your New York City classes, or they attended one of your seminars, or they used your books with their children. You already have a band of disciples on Capitol Hill who are spreading your message in Congress.

Hopefully, the parents of America will also be disciples shortly. It is interesting to me that we probably spend the first year of a child's life telling the child to stand up, walk, and talk, and the rest of his life to sit down and shut up.

There may be a paradox in our mindset. So, we thank you for your contributions today.

[The prepared statement of Ms. Prudden and the biography of Mr. Simmons follows:]

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TESTIMONY ON THE LACK OF PHYSICAL FITNESS OF AMERICAN CHILDREN FOR THE UNITED STATES SENATE SUBCOMMITTEE ON CHILDREN, FAMILY, DRUGS AND ALCOHOLISM

Thirty years ago a simple, medically valid test for minimum fitness of key posture muscles was given to thousands of American public school children between the ages of six and sixteen. The same test was given to three thousand European counterparts in Austria, Italy and Switzerland.

THE AMERICAN FAILURE RATE WAS 58 PERCENT...EUROPEANS, 8 PERCENT

A report of that study was brought to President Eisenhower who expressed himself as "shocked" and founded The President's Council on Youth Fitness. Under President Kennedy this became known as The President's Council on Physical Fitness. Lately the word "Sport" has been added to the title.

THE CAUSES FOR THE AMERICAN FAILURE

The first major cause was the school bus, the second was television and the third, a failure by the schools to inform students as to the basic physical needs of the human body and how to achieve them in an increasingly sedentary society.

THE RESULTS

The Kraus-Weber test can predict with certainty, which students are predisposed to back pain, one of the worst scourges in America. When the Austrian Minister of Health was informed that we felt this to be the case he said, "Then our children will fail at ten percent because that is our backache percentage in adults." The Austrian children had a failure rate of 9.5 percent. Almost 60 percent of ours failed!

If there is insufficient physical outlet for emotional stress, the body responds with tension and ultimately pain, both physical and emotional. Both types of pain almost always lead to the ingestion of drugs. Drug addiction is not confined to the streets.

People who feel "down," "tired," "depressed," "blue," "lousy," or in a word, below par, often look for a "lift." That "lift" is often alcohol.

THE REPORT THAT SHOCKED THE PRESIDENT

That is what SPORTS ILLUSTRATED called our report and for good or bad, it started what is now called "The Fitness Boom." People out in the work-a-day world began to search for ways to improve their health and fitness. In 1930 the schools had started to give up on what was called "Physical Education" with its solid exercise programs taken from those used by the Germans and Scandanavians. Following Columbia Teacher's College in New York, many embarked on "Sports" for tall boys and circle games for the "masses." "Play" became the watch-word. As a result, graduates from the public school system hadn't the slightest idea when it came to setting up personal programs. Not knowing good exercise from bad, healthy from unhealthy or productive from destructive exercise, many ran their legs into painful spasm on unforgiving surfaces. Having never learned a proper "warm up," they substituted stretches and pulled cold muscles mercilessly into rags. In search of cardio-vascular fitness, many damaged the muscular support of both, the legs. Some, like "aerobic dancers" have been so badly injured they can no longer do even the mildest forms of exercise. But who is doing that, the children? Certainly not! You will see men and women running, biking and sweating on machines, but the children, not at all. The children ride to school in buses, sit in classrooms all day, ride home, check the refrigerator for junk food and settle down to watch TV. The games, "Hide-and-seek," "Kick the Can," "King of the Hill," and "Red light" which used to be taught to little children by bigger children are so rare today they are taught in college as part of Recreation.

WHEN DOES IT START?

Unfitness starts in playpens, strollers and car seats. Nursery schools and day care centers augment that damage by penning already weakened children in rooms. By the time the child gets to real school where supposedly he or she will have some formal physical education, that child is handicapped. It could be considered "sick" and in need of rehabilitation. Instead the answer will be "recreation." In the fifties it was discovered that children entered school with a 54 percent failure and graduated with a 52 percent failure. A 2 percent improvement for twelve years spent in physical education was not an impressive record even then....and much worse now.

HOW MUCH TIME DO THE SCHOOLS ALLOT TO THE HUMAN BODY FOR PHYSICAL TRAINING?

What is claimed and what is real are two different things. The facts are very grim. A few years ago two researchers "observed" physical education classes from El Paso, Texas to Portland, Maine. Each had a hidden stop watch. Each chose one child in each class as the person to time with the watch. Two types of children were selected, one active and enthusiastic and the other rather passive, lethargic and definitely uninterested. The watches were on when the children moved productively. When they were running, jumping,playing an active game, the watches were on. When one stopped, sat, watched, listened to instruction, stood in line or waited for roll taking, the watch went off. The average movement time was three minutes per 45 minute class.....from one side of the country to the other. Games are fine for the physically superior. They can be very discouraging for those with less strength, flexibility and coordination, the very qualities physical education should develop. Ask any American girl how she likes "gym." The answer used to be "yuk." Now it's "Gross." American females menstruate nine months out of the year since that excuses them from the hated course. The advantage in P.E. goes to the tall boy, the small boy's excuse is often "asthma."

The "Heckler Report," taken from the findings of the National Children and Youth Fitness Study, sounds several ominous notes. Children are fatter than they used to be. Twenty eight percent of them have higher than normal blood pressure. Forty one percent have high cholesterol levels in their blood and their heart-lung fitness lags behind most middle-aged joggers. Ninety eight percent have at least one risk factor predisposing to heart disease.

WHAT IS THE TREND AS SHOWN BY THE KRAUS-WEBER TEST TODAY?

A request was sent out in August to 100 Certified Bonnie Prudden Myotherapists℠ who are also Certified Exercise Therapists and trained in Kraus-Weber testing. They were asked to test as many young children as possible before the subcommittee met.

It was difficult to get into the schools during their starting week, but 21 schools allowed the testers in. Many physical educators had the last word and were delighted at the prospect. The Myotherapisrs promised to come back and do demonstrations of both gym and classroom exercise to music. Americans, including American children love to move to music.

The results of the tests were as expected, very poor. We have had thirty years in which to find ways to improve the fitness levels of children....it has gotten worse. Results differ markedly from school to school, but at this time of year when children have been at home for two or three months, summer activity should be an equalizer. Sadly, there doesn't seem to have been much activity. In case one should be tempted to see different parts of the country as being more conducive to fitness there has been proof that the problem is national rather than sectional. In 1979 The Center of Parenting, UCLA Extension, in Palos Verdes, California gave the Kraus Weber Test to 500 first graders. The failure rate was 86 percent.

PHYSICAL EDUCATION

American children are prevented from developing into normal, healthy people by what goes on (or doesn't go on) at home. Before the coming of cars, buses and TV, children walked, ran, hopped, skipped and played out of doors. This is no longer the case. Physical education cannot hope to cope with the problem of weak, inflexible bodies, lack of coordination and endurance with a program of circle games. American P.E. is a bandaid on a hemorrhage. We are in need of a complete turn-around toward calesthenics, group walking and running (but on the ground, not the road), stretching and weight training. Even if such a change took place, it could still be undermined by family life.

THE FAMILY

This is where the major fault lies and where the remedy is to be found. The key is the mother. The children of dancing mothers, dance. The children of gymnasts go to tumbling class. The children of skiing mothers, sailing mothers, hiking mothers and swimming mothers, ski, sail, hike and swim. As the boy is father to the man, the girl is mother to the woman and her brood. There is nothing

the matter with the American girl except lack of opportunity and training. When the K-W test was given to girls graduating from such schools as Rosemary Hall, Greenwich Country Day School, Greenwich Academy, Masters and Fieldston, they turned in a failure rate of 16 percent. Had such girls been trained then to work with their babies....had they known that the future fitness and often painlessness depended on the exercises they as motherscould provide, we would have thousands of far healthier children today. Had that same training been available to well exercised public school girls, there would have been millions of such children underfoot today.

Today's American children have high muscular tension, high absolute and relative weight, higher blood pressure than is normal, a high pulse rate, high cholesterol levels, low adreno-cortical reserve, poor muscle strength and flexibility, poor balance and coordination, poor vital capacity...and they lack both curiosity and enthusiasm, both signs of healthy childhood.

WHY ARE GIRLS IMPORTANT?

They are the ones who set examples. You don't talk a child into healthy action, you act yourself and the child follows. If women walked they would understand using bus money to build fenced-in walk ways from out-lying neighborhoods to schools. Children could walk, bike or skate to school and get a half hour of exercise twice a day. That would be five full hours a week they aren't getting now.....and it wouldn't cost anyone anything after the initial expense which could be met from gasoline costs alone.

If girls had good bodies themselves they would realize the importance of such assets for their children and fight for them. There is nothing so formidable as a woman fighting for her child's rights...whether she is right or not. It is the business of good education to give her the right answers.

WHERE ARE THE PROGRAMS SHE CAN FOLLOW?

There are five books by Bonnie Prudden which carry proven programs that can be instituted by any family. The programs have stood the test of time and not one of them has damaged anyone. They are fun and they do the job.

HOW TO KEEP YOUR CHILD FIT FROM BIRTH TO SIX (The first and best opportunity)
FITNESS FROM SIX TO TWELVE (The last chance for realizing potentials)
TEENAGE FITNESS (Teachers are at a loss for co-ed programs...here they are)
TEACH YOUR BABY TO SWIM (The program that started Baby-swims in Ys)
HOW TO KEEP YOUR FAMILY FIT AND HEALTHY (This is where the answer lies)

The job of making people aware of the need for fitness has been done. Now they must be shown how. The family is the teacher, the home is the gym and the playground...the program is available and the media, especially TV can be the cheering section. Today THE AFTER FIFTY CROWD are the last fit Americans because they walked to school and played out of doors. We can start there.

TEST FOR ABDOMINALS +

Kraus-Weber Tests For Muscular Fitness

These six tests of key muscle groups represent the minimal performance necessary for healthy living. (Fifteen year study on patients with low back pain. Hans Kraus.) Barbara Stimson, Sawnie Gaston.

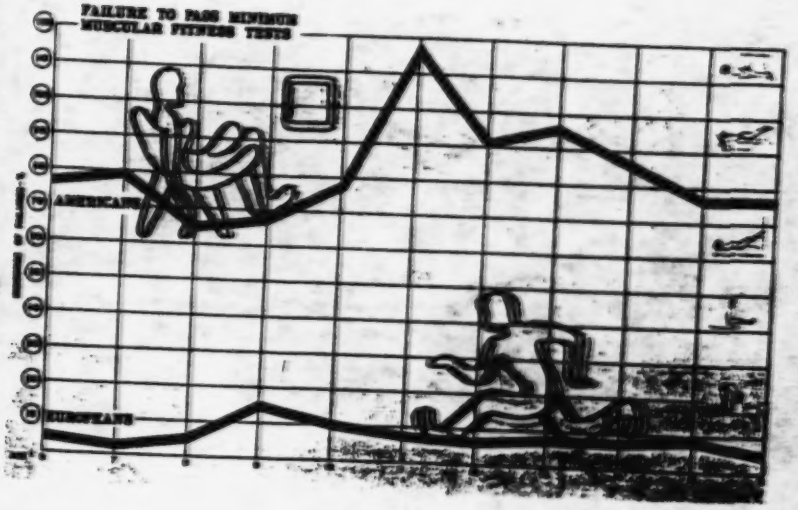
TEST FOR ABDOMINALS –

TEST FOR UPPER BACK

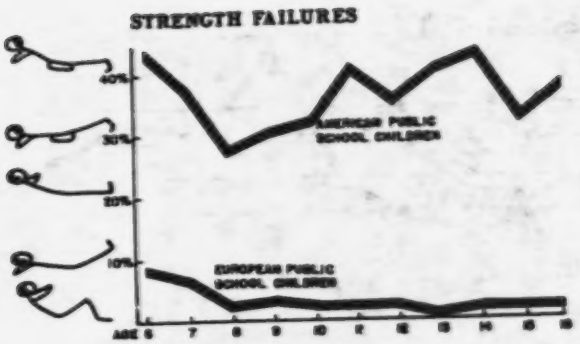
TEST FOR PSOAS - LOWER ABDOMEN

TEST FOR LOWER BACK

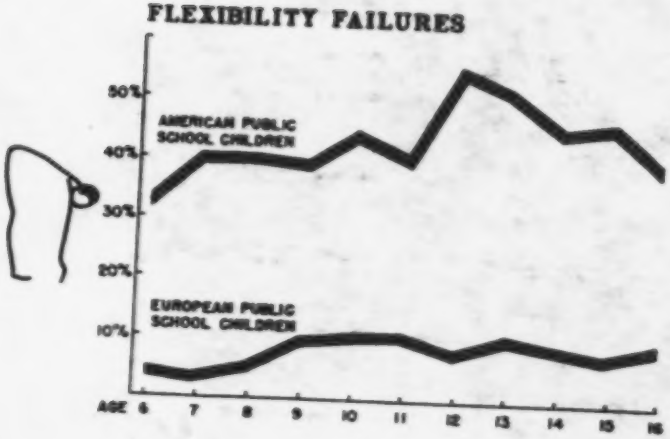
TEST FOR LENGTH OF BACK AND HAMSTRING



This graph illustrates the incidence of failures to pass these tests. The high incidence of failures in our school children from six to sixteen indicates their low muscular fitness as compared with European counterparts. Difference between these groups was the lack of physical activity in the life of our children. The European were forced to a much greater degree of physical activities since there are no school buses, no mechanical aids, no passive entertainment available. There was no physical education at all in one of the European groups. In spite of it, physical activity of every day living was enough to keep them in good physical shape.



Over 35% of our children fail strength test. Less than 2% fail in Europe (H. Kraus, B. Prudden (Hirschland).

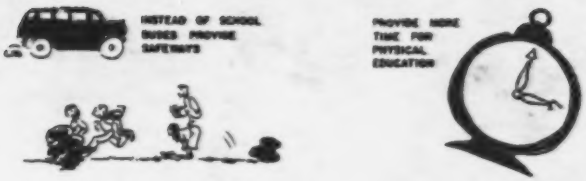


Over 40% of our children fail flexibility test. Less than 8% fail in Europe. (H. Kraus, B. Prudden (Hirschland).

PREVENTION BY PARENTS

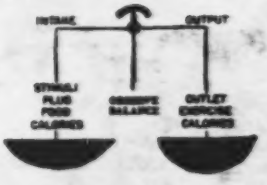
Parents should encourage free play, walking, running, active entertainment - avoid the use of play pens and strollers, car rides and passive entertainment.

PREVENTION BY SCHOOLS



Physical activities in schools should be increased. Formal exercise should be stressed rather than permissive games. Safeways should be provided instead of school buses.

TREATMENT BY THE DOCTOR



Muscle tests should be part of evaluation of our patients. Balance between intake and outlet should be attained by increased physical activity not be rest or diet alone.

Physical activity and exercise should be prescribed whenever indicated.

86% of 1st-Graders Fail Physical Fitness Test

By MARTIN ZUCKER

Incredibly, most youngsters in America are so out of shape that they can't even pass a minimal physical fitness test as early as the first grade!

That's the shocking conclusion of a new study of 10 million by the Council for [illegible], a Palm Beach, Florida [illegible] organization.

[illegible]

[illegible]

[redacted]

[illegible]

[illegible]

[illegible

Institute For Physical Fitness
Keep Fit
Stockbridge, Ma. 01262

STATE	TOWN	SCHOOL	AGES	NUMBER TESTED	NUMBER DEFICIENT	BOYS FAILED	GIRLS FAILED	FLEXIBILITY FAILURES	WEAKNESS FAILURES	NOMINAL FAILURES	BACK FAILURES	PSOAS FAILURES	INCIDENCE OF FAILURE	TESTER
MICH	GRAND RAPIDS	GRACE CHURCH NURSERY	3 and 4	32	20 63%	(9-17) 40%	(11-15) 73%	10 31%	15 47%	8 25%	17 53%	6 19%	49 76%	Mary Perfitt
MASS	DENNIS	SCARGO	3,4,5,6	33	19 57%	(14-24) 58%	(5-9) 56%	1 3%	22 67%	13 39%	7 21%	0 0	23 70%	David Rogers Judy Gordon
CONN	UNIONVILLE	U. ELEMENTARY	7	20	13 65%	(3-6) 75%	(10-14) 71%	5 40%	11 85%	10 77%	1 8%	1 8%	30 150%	Christina Whittlesey
COLORADO	BOULDER	RAINBOW DAY CARE	2,3,4	19	12 63%	(6-9 67%)	(6-9) 33%	0 0	13 68%	11 58%	7 37%	0 0	18 95%	Mimi Greene
MASS	QUINCY	BEECHWOOD COM. CENTER KINDER	5	15	11 73%	(5-6) 71%	(5-6) 71%	5 33%	4 27%	7 47%	7 47%	2 13%	30 200%	Linda Comstock
COLORADO	GOLDEN RIDGE	CARRIAGE HOUSE	3,4,5,6,	21	12 57%	(6-9 33%)	(9-14) 64%	5 24%	12 57%	9 43%	2 10%	1 5%	17 81%	Mimi Greene
N.H.	NEW PORT	RICHARDS	8	47	29 62%	(14-19) 74%	(11-28) 96%	7 15%	36 77%	18 38%	7 15%	0 0	39 75%	Nancy Donovan
OHIO	TOLEDO	TOLEDO P.S.SYS.	9 thru 12	135	135 100%	(72-88) 82%	(63-77) 82%	135 100%	93 69%	39 29%	61 45%	5 4%	175 130%	Olaf Gerhardt
N.C.	GREENSBORO	TRI CITY JR.	2 thru 11	20	15 42%	(10-19) 53%	(5-9) 33%	7 33%	17 81%	3 9%	8 38%	4 19%	32 76%	Carl Voigt
N.Y.	ALBANY	ALBANY JEWISH COM. H.S.	5	9	7 [illegible]	(2-) [illegible]	(3-5) [illegible]	7 78%	11 [illegible]	9 [illegible]	7 78%	0 0	16 [illegible]	Sara Bialosan
N.H.	DOVER	HUCKLEBERRY HILL KINDER	5 and 6	19	10 [illegible]	(5-6) [illegible]	(5-6) [illegible]	0 0	13 68%	9 [illegible]	3 16%	1 [illegible]	13 68%	Joan Illsworth
MICH	GRAND RAPIDS	RAINBOW DAY CARE		8	4 [illegible]	(2-3) [illegible]	(2-) [illegible]	2 [illegible]	9 [illegible]	2 [illegible]	2 [illegible]	0 0	6 [illegible]	Mary Perfitt
WISCONSIN	MILWAUKEE	ST. JOHNS	9	32	18 [illegible]	(13-19) [illegible]	(10-13) [illegible]	19 [illegible]	10 [illegible]	0 0	9 [illegible]	1 [illegible]	29 [illegible]	Brian Cummings
NEW YORK	Won't allow [illegible]	MIDDLE SCHOOL	9,10,11,12	33	16 [illegible]	(8-) [illegible]	(8-) [illegible]	19 [illegible]	6 [illegible]	0 0	2 [illegible]	4 [illegible]	30 [illegible]	Judith Gyberg
CONN	QUAKER HILL	MAGIC YOURS PRE SCHOOL	3 and 4	12	4 [illegible]	(3-4) [illegible]	(2-4) 0	1 [illegible]	4 [illegible]	0 0	3 [illegible]	1 [illegible]	5 [illegible]	Kythryn Trotter
CONN	WATERFORD	CHILDREN'S DISCOVERY CTR	2,3,4,	16	13 [illegible]	(7-) [illegible]	(5-7) [illegible]	3 [illegible]	23 [illegible]	9 [illegible]	13 [illegible]	2 [illegible]	26 [illegible]	Kythryn Trotter
CONN	FAIRFIELD NEW MILFORD	COMBINED NURSERY SCHOOLS	3 and 4	41	40 [illegible]	(20-20) [illegible]	(20-20) [illegible]	26 [illegible]	47 [illegible]	32 [illegible]	19 [illegible]	6 [illegible]	77 [illegible]	Ali Anderson
CONN	REDDING	TIMOTHY DWIGHT	5	86	59 [illegible]	(36-36 [illegible]	(23-30 [illegible]	30 [illegible]	66 [illegible]	46 [illegible]	18 [illegible]	2 [illegible]	96 [illegible]	Ali Anderson Fran Cormier
MICH	FLINT	HOLY ROSARY	5 thru 12	99	46 [illegible]	(20-20) [illegible]	(20-19) [illegible]	30 [illegible]	31 [illegible]	4 [illegible]	19 [illegible]	8 [illegible]	61 [illegible]	Mark Mosier
MASS	PLAINVILLE	ANNA WAVE JACKSON	6,7,8	16	12 [illegible]	(6-9 [illegible]	(7-8) [illegible]	10 [illegible]	8 [illegible]	3 [illegible]	3 [illegible]	2 [illegible]	18 [illegible]	Helen Haskell
MASS	PITTSFIELD	MORNING SIDE	6,8,9,	77	33 [illegible]	(20-28 [illegible]	(28-36 [illegible]	26 [illegible]	19 [illegible]	6 [illegible]	9 [illegible]	4 [illegible]	40 [illegible]	Petraca Mariani
				794	528 66%	250 71%	278 63%	390 49%	604 76%	324 41%	270 34%	80 10%	796 100%	
TOTAL														

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RICHARD SIMMONS

BIOGRAPHY

Richard Simmons' name is synonomous with health and happiness. He's the country's most energetic, dedicated and vibrant fitness motivator. He promotes and personifies daily exercise, proper nutrition and a positive attitude.

Standing at 5'8" and weighing in at a lithe 137 pounds, Simmons is a living testament to his "Live-It" program (as opposed to "diet": "Look at the first syllable of diet - now, is that any way to inspire anyone?!") Such was not always the case. Simmons tipped the scales at 200 pounds by the tender age of 15, and had reached 268 by 19. In 1968, while studying in Italy, he found a note from an anonymous friend on his car windshield: "Dear Richard: Fat people die young, please don't die". This prompted Simmons to crash-diet and lose 130 pounds in two and a half months, where he wound up in the hospital. This drastic incident made Richard realize the importance of not only losing weight but how to do it the right way, leading to his extensive research into health, nutrition and safe ways to lose poundage.

In the early 1970's, he arrived in California and became maitre'd at Derricks Second Floor, a posh Los Angeles restaurant. The overeating he saw there shocked him: "People had positively no idea what they were doing to their bodies. I said, "This is self-destruction time. I can't feed people this stuff." So in 1975, with a few investors, Simmons opened Ruffage, the first restaurant in town with such an extensive salad bar. As the host, he would use benign intimidation and positive reinforcement to help make losing weight fun. Patrons of the restaurant soon included such well-known personalities as Barbra Streisand, Cheryl Ladd, Diana Ross,

Henry Winkler, Dustin Hoffman, Paul Newman and Joanne Woodward. Soon he would tranform the back part of the restaurant into an exercise studio, leading to the first Richard Simmons Anatomy Asylum exercise studio.

With 65 Richard Simmons Anatomy Asylums across the country and 40 more to be opened next year, Richard found the perfect place to teach his philosophy about exercise. Not your stereo-typical singles hang-out, the Anatomy Asylums stress the Simmons' philosophy and perpetuate the genuine concern for real people with real weight problems. Individuals with extreme weight loss needs may not be accepted at other exercise studios get the energetic encouragement they need to meet their goals.

Next, Simmons hit the television talk show circuit, where appearances on such programs as "Real People" and "NBC Magazine" introduced his outrageous sense of humor and common-sense approach to fitness to national audiences, primetime as well as daytime. Beginning in 1979, he made regular appearances as himself on "General Hospital". The country was soon catching on and Richard found himself being profiled in such leading national magazines as "Time", "Newsweek", "TV Guide", "People", "Us" and many more, all leading to the "Richard Simmons Show" in 1980.

The four-time Emmy Award winning syndicated television show was known for its unique presentation of topics ranging from health, exercise techniques and nutrition. Infusing the staid TV exercise format with his own mirth-with-a-message approach ("if I can keep my huffing pupils in hysterics so much the better. If we're going to have healthy bodies, let's have fun doing it"). The Richard Simmons Show ran for almost four years before being sold to Life-Time Cable where it can be seen twice a day across the country.

With the success of his daytime television show, Elektra-Asylum Records released a special album of exercises with original music for people to exercise to Richard in their home. The album titled, "Reach" by Richard Simmons sold over a million copies.

Simmons has written three best selling books on exercise and nutrition. In 1980 "Never Say Diet" was released and sold over a million copies in hardcover. That success spawned the sequel, "Never Say Diet Cookbook" and again reached the #1 best seller lists. In 1983, "The Richard Simmons Better Body Book" was released and immediately hit the best selling charts. Ever innovative, Richard's next tome for Warner Books entitled, "Never Say You Can't Exercise", is written for people with disabilities who, prior to now, have been virtually ignored by fitness experts. Royalties from both Warner Books and Richard Simmons Books will go to The Richard Simmons Reach Foundation, set up to build and staff exercise studios for the handicapped in major hospitals across the country. The first being Orthopedic Hospital in Los Angeles.

In 1983, Richard made his first exercise video titled, "Every Day With Richard Simmons Family Fitness", released through Karl Home Video. Because the tape went platinum, a second tape titled "The Stomach Formula" by Richard Simmons was released and went gold. A third tape, "Get Started" was recently released combining nutrition and exercise for the overweight and out of shape individual who currently doesn't exercise.

In the meantime, Simmons found that while a woman who was over a size 16 was losing weight, she could not find anything to wear, thereby showing another area that was ignored by clothing manufacturers. "Advantage by Richard Simmons" was created for the big girl. It's a line of spectator and sportswear in addition to exercise wear now selling in over 1500 department stores across the country. Sizes go from 16 to 44.

A second line, "Curves", budget priced for Montgomery Ward, will be soon out. ("We don't throw you any new ones, we just take care of the ones you have.")

The project that excites Richard the most however, is the Broadway play he is developing and in which he will star. The play is called "L85.", a musical about life on a fat farm, sort of a "Chorus Line" of health. It's about 10 people who come to visit and lose weight. The musical promises to inspire laughter, tears and hopefully a better understanding of people.

The thread that runs through all of Richard's activities is that he cares. He best explains, "At 15 years and tipping the scales at 200 pounds, I was the last chosen for an athletic event and the first in line for lunch. I don't think there has ever been anyone like me before... someone who tells people what it's like to be fat and then tries to help them. It's important to me that in my lifetime I can make a dent on the weight problem. That's why I'm here."

SOLTERS/ROSKIN/FRIEDMAN, INC
[illegible]

5455 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA
(213) 936-7600

FROM: LISA KASTELER

OCTOBER 3, 1984

RICHARD SIMMONS ESTABLISHES THE REACH FOUNDATION TO FUND EXERCISE FACILITIES FOR DISABLED IN HOSPITALS AROUND THE COUNTRY

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SIMMONS TO CO-CHAIR FOUNDATION WITH ROBERT M. SLOANE, PRESIDENT OF L.A.'S ORTHPAEDIC HOSPITAL

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Physical fitness expert Richard Simmons has established the Reach Foundation, to provide for exercise facilities for the disabled in hospitals around the country. The first workshop will commence in Los Angeles at the Orthopaedic Hospital, January 1985. "This is a privilege I've been waiting for," states Simmons, "to help patients change their disabilities into capabilities."

The Reach Foundation will receive funding for a nationwide program via royalties donated by Simmons and his publishers, Warner Books, from his forthcoming book, Never Say You Can't Exercise, to be published in 1985.

Facilities built under the auspices of the Reach Foundation will resemble Simmons' successful chain of exercise studios across the country. Classes will be offered free of charge to patients in the hospital, as well as outpatients. Gymnasiums will be staffed by instructors who have overcome their own disabilities, and who will work closely with professional physical therapists in each hospital.

In Never Say You Can't Exercise, the first comprehensive layman's

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guide to exercise for the disabled, Simmons maintains that disabled people should not be spared from strenuous exercise. "Exercise is good for you. It makes you feel better; but most importantly, it makes you feel better about yourself. If a person with a disability doesn't use the parts of his body that work, additional health problems can develop."

Simmons, in his fourth year as National Spokesperson for Spina Bifida Association of America (spina bifida is the most common disabling birth defect), has devoted a great deal of personal time to working with children afflicted with this and other diseases. In his travels across the country, he visits hospitals spreading his special style of good cheer and hope. From these experiences came the dream to establish the Reach Foundation.

Robert M. Sloane, president of the Orthopaedic Hospital, expresses his vote of confidence in the project, "Orthopaedic Hospital is proud to help develop this program for disabled children and adults. We look forward to lending our expertise to other hospitals across the country."

The Reach Foundation's Board of Directors is working closely with their Professional Advisory Committee made up of a dozen health professional and doctors. Larry Apodaca, L.C.S.W., a social worker at Orthopaedic Hospital has been named director of the Reach Foundation.

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Senator HAWKINS. The next panel will be composed of Dr. Richard Schieken, a pediatric cardiologist, from the Medical College of Virginia, and Dr. David Harsha of the Louisiana State University Medical Center.

Both of these gentlemen have been very active in research into the health consequences of children who are obese. I welcome you both to today's hearing.

Senator HAWKINS. Dr. Schieken, would you like to go first?

STATEMENT OF DR. RICHARD M. SCHIEKEN, PEDIATRIC CARDIOLOGIST, MEDICAL COLLEGE OF VIRGINIA, REPRESENTING THE AMERICAN HEART ASSOCIATION; AND DR. DAVID W. HARSHA, ASSISTANT PROFESSOR OF MEDICINE, LOUISIANA STATE UNIVERSITY MEDICAL CENTER

Dr. SCHIEKEN. Thank you very much, Senator Hawkins. I am Dr. Richard Schieken, professor and chairman of the division of pediatric cardiology at the Medical College of Virginia, and today, I appear before this subcommittee on behalf of the American Heart Association as a member of that Association's Council on Cardiovascular Disease in the Young.

I wish to commend Senator Hawkins for holding this hearing because I, like many others, feel that the health of this country lies with America's youth.

Approximately 44 million Americans have one or more forms of heart of blood vessel disease; nearly 50 percent of all deaths are due to these cardiovascular diseases, and nearly one-fifth of all persons killed by cardiovascular disease are under age 65.

Heart attack, the leading cause of death, caused more than a half million deaths in 1982.

Atherosclerosis, the underlying cause of heart disease and stroke is a disease of many causes. While not everything is known about this, scientists have identified several personal characteristics or traits which increase an individual's probability of heart disease and stroke, and these are referred to as "risk factors."

Some of these cannot be changed, but others really must be changed. Those that cannot be changed: obviously, are heredity, sex, race, and age; but major risk factors that can be changed are cigarette smoking, lowering blood pressure, elevated plasma lipids, including cholesterol.

There are contributing factors such as obesity and the lack of exercise that we have heard so much about already this morning.

Until recent years, efforts to identify risk factors were focused on adults. Now more attention is being focused on identifying risk factors of coronary heart disease in children, so that preventive measures can be introduced at a stage when they are most likely to influence the underlying disease.

These measures also influence habits that will extend into adulthood and reduce the risks of developing disease as an adult.

Today, I would like to focus attention on elevated plasma lipids, especially cholesterol, exercise, and cigarette smoking. There is general agreement that atherosclerosis begins in youth and progresses through young adulthood, even though the symptoms do not appear until middle age or later.

Senator HAWKINS. What age would that be? I have heard the statement several times, that it begins in youth.

Dr. SCHIEKEN. When do symptoms normally occur in coronary heart disease?

Senator HAWKINS. Yes.

Dr. SCHIEKEN. The symptoms that are recognized as angina and shortness of breath, pain, et cetera, in the chest, most commonly occur in the 1950's, mid-1950's. We would consider an individual who had disabling symptoms of coronary heart disease, before age 55, to be premature.

Senator HAWKINS. Thank you. Excuse me for interrupting.

Dr. Schieken . Certainly. Numerous well-controlled studies demonstrate that plasma lipid or fat levels can be changed in individuals by changing the amount of animal fat, and vegetable fat and cholesterol fat in the diet.

That is, by lowering animal fat and increasing the unsaturated vegetable fat. It has not been demonstrated directly by appropriately controlled studies, whether or not dietary modification in children will alter the incidence of coronary heart disease in later life. It is just too early to know at this point. However, in adults, evidence supporting a reduced incidence of coronary heart disease in individuals with lower plasma cholesterol levels is strong.

As a matter of fact I would go on to say that the recent coronary prevention trial, primary prevent trial, showed that individuals who had high cholesterols, who lowered their cholesterols, went on to decrease their risk of coronary heart disease.

So we can make an even stronger statement that links the concept that children with lower plasma cholesterol levels, who go on to continue as adults with lower plasma cholesterol levels, will do better and have a lower incidence of coronary heart disease.

The recommended diet appears to be safe for all healthy children beyond infancy, and can be expected to effect a modest reduction in total plasma cholesterol in most.

It is a practical and effective way to achieve important preventive measures.

In addition to the widespread public health measures, I would like to recommend that the diet should be strongly urged for children of families with a frequent history of coronary artery disease.

Additionally, regular exercise is beneficial to both children and adults. A major goal is to develop in the child a desire to maintain a physically active life style that will persist through adolescent and adult years. These exercise habits should lead to the development and maintenance of a healthy and efficient cardiovascular system.

Regular exercise may reduce other cardiovascular risk factors. Specifically the exercises which best achieve the requirements for cardiac conditioning include jogging, rowing, stationary cycling, swimming laps, skiing, basketball, calisthenics, handball, racquetball, soccer, squash, tennis, and walking.

Children divide their time between home and school, and that is where habits are formed. Since parents and sibs serve as the major role model of most children, good exercise habits should be present in the entire family.

There are two areas the school can help in establishing habits of regular conditioning exercises: Health education should be more attractive, interesting and informative for children of differing ages and activities during physical education period should be rhythmic, use large muscle groups and should be sustained for an adequate period of time.

More emphasis should be placed on learning the skills of sports that people will continue as life-long activities. There are after all only 40 kids in a school, sometimes, of 5,000, that are on the football team, and that leaves a lot of kids out in the stands sitting and watching, rather than participating in a sport that they enjoy and that they can continue in later life.

One of our major problems of course is cigarette smoking which is by far the leading avoidable cause of death in the United States today.

A large majority of adult smokers begin the habit before age 21, and smoking habits in youth appear to determine life-time cigarette consumption.

Kids begin experimenting with cigarettes somewhere around the sixth grade. They do not really become smokers, habitual smokers, until the junior and senior year of high school, if they are going to become habitual smokers.

So we have learned a lot about smoking behavior of children and learn that we can change it if we begin programs early enough.

Since 1968, there has been a decrease in smoking among adolescent males. However, in spite of this, over 11 percent of males were smoking in 1979 and smoking rates among adolescent females increased over the same period.

In addition, tied with this, I personally believe—and this is not a posture of the American Heart Association—that one of the reasons that women, young girls are smoking, is that they are concerned about weight, and smoking does appear to decrease the appetite, and I think this has to be dealt with head-on, that children can learn nutrition, they can learn exercise, and they can learn to maintain an ideal weight for themselves without having to go to such an abusive habit as smoking.

Smoking by parents, older siblings, and close friends all predict smoking in adolescents. Smoking by parents and older siblings, in particular, carries the incorrect, inappropriate, and dangerous message, that this is a desirable activity, that it is a way of appearing mature, and that smoking is a way of releasing anger.

One in four regular smokers die prematurely from smoking. It is therefore imperative that the American Heart Association and health care providers establish smoking prevention as a top priority.

Given the marginal success of most smoking cessation programs for adults, we are beginning to do better with this but there is a lot we can do.

We feel that prevention of new smoking among adolescents presents the most promising and most effective strategy for eliminating this major public health problem.

Now, American Heart, in recognizing the importance of establishing heart healthy lifestyle behaviors early in life, and the potential for health education targeted toward preschool children,

has developed a heart health education program designed for use in 3- to 6-year-old children. The program, called the Heart Treasure Chest, which I understand you have received, is composed of a curriculum guide for teachers, five "Heart Notes" newsletters for distribution to parents, and a collection of learning materials, such as tapes, posters, games, et cetera, for classroom use.

The preventive heart health curriculum consists of three special teaching/learning modules to be presented in 3 weeks.

The three modules are entitled: "The Work of the Heart and Ways to Tell If It's Healthy," "Physical Activity and Rest," and "Heart Healthy Foods."

A complete set of promotional materials, including training aids for Heart Association staff and volunteers, as well as classroom teachers, completes the program package.

The American Heart Association, a trailblazer in the field of early childhood health education, also developed the Schoolsite Program, which focuses on ages 3 to 18 to help people choose lifestyles which can lead to improved heart health by establishing the following heart-healthy goals.

First. Remaining a nonsmoker throughout life.

Second. Making informed and healthful food choices.

Third. Developing a habit of regular physical exercise and weight control.

Fourth. Maintaining a blood pressure within normal limits.

Fifth. Understanding anatomy, physiology and cardiovascular diseases in order to recognize real or potential problems related to risk factors of heart attack and stroke.

The delivery mechanisms by which the various parts of the program reach the classroom teacher and students varies from a simple process of making materials available for purchase from a local American Heart Association office to a well-defined, well-organized system or targeted implementation through local volunteers.

Through programs targeted to our youth during the years when lifestyle habits are formed, the American Heart Association seeks to influence the adoption of heart-healthy habits.

[The prepared statement of Dr. Schieken follows:]

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Testimony of

Richard M. Schieken, M.D.
Pediatric Cardiologist
Medical College of Virginia

ON BEHALF OF

THE AMERICAN HEART ASSOCIATION

BEFORE THE

SENATE SUBCOMMITTEE ON CHILDREN,
FAMILY, DRUGS AND ALCOHOLISM

THE HONORABLE PAULA HAWKINS
CHAIRWOMAN

SEPTEMBER 24, 1985

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WE'RE FIGHTING FOR
YOUR LIFE

I am Dr. Richard Schieken, a pediatric cardiologist at the Medical College of Virginia. Today, I appear before this Subcommittee on behalf of the American Heart Association as a member of that Association's Council on Cardiovascular Diseases in the Young.

I want to commend Senator Hawkins for holding this hearing because I, like many others, feel like that the future and health of this country lies with America's youth.

The United States boasts of advances in medical science beyond those of any other country in the world. Yet its citizenry continues to suffer and die of diseases of the heart and blood vessels (cardiovascular disease) at an alarming rate.

Approximately 44,000,000 Americans have one or more forms of heart or blood vessel disease; nearly 50% of all deaths are due to cardiovascular disease (CVD) and nearly 1/5th of all persons killed by CVD are under age 65. Heart attack, the leading cause of death, caused more than 1/2 million deaths in 1982.

Atherosclerosis is the major underlying condition of cardiovascular disease. It is a slowly developing asymptomatic process in which the linings of the arteries become thickened and roughened by deposits of fat, cholesterol, fibrin, cellular debris and calcium.

As this buildup on the inner walls become hard and thick, arteries lose their ability to expand and contract. The artery channel narrows making it more difficult for the blood to flow through. This makes it easier for a clot to form that will block the channel and deprive the heart, brain or other organs of blood.

When a complete blockage occurs in a coronary artery, the result may be coronary thrombosis, one form of heart-attack. When blockage occurs in a vessel to the brain, the result may be a cerebral thrombosis, one form of stroke.

Atherosclerosis is a multifactorial disease of many causes. While not everything is known about the disease, scientists have identified several personal characteristics or traits which increase an individual's probability of heart disease and stroke. These are referred to as risk factors. Some of these cannot be changed, but others can be changed under the direction of a doctor, and still other risk factors can be controlled by the individual. Those that cannot be changed are heredity, sex, race, and age. Major risk factors that can be changed are cigarette smoking, high blood pressure, and elevated plasma cholesterol. Contributing factors are obesity, and lack of exercise.

Until recent years, efforts to identify risk factors were focused on adults. Now, more attention is being focused on identifying risk factors of coronary heart disease (CHD) in children so that preventive measures can be introduced at a stage when they are most likely to influence the underlying pathologic process. These measures may also influence habits that will extend into adulthood and reduce the risks of developing atherosclerosis as an adult. Today I'd like to focus attention on elevated plasma cholesterol, which is influenced by diet, cigarette smoking and exercise.

There is general agreement that atherosclerosis may begin in youth and undergo progression through young adulthood even though clinical manifestations usually do not appear until middle age or later.

Large population surveys of precursors of risk factors for CHD in children have established that U.S. children have higher plasma lipid concentrations than children of other populations in which adult atherosclerotic disease is less frequent. About 5% of 5-18 year old U.S. children have plasma cholesterol levels greater than 200-220 mgs/dl.

Numerous well controlled studies demonstrate that plasma lipid levels can be changed in individuals by changing the amount of saturated (animal fat) and polyunsaturated fat (vegetable fat) and cholesterol in the diet.

It has not been demonstrated directly by appropriately controlled studies whether dietary modification in children will alter the incidence of CHD in

later life. However, in adults, evidence supporting a reduced incidence of CHD in individuals with lower plasma cholesterol levels is strong. For these reasons the AHA recommends a nutritionally adequate, well-balanced diet reduced in fat and cholesterol content for healthy children over the age of two.

A major associated benefit of these dietary recommendations is the possibility that dietary habits learned in childhood will persist into adult life. The reduction of total dietary intake in the obese childhood population is important. Finally, there is the possible benefit of a lower mean plasma cholesterol level in the childhood population.

The recommended diet is safe for all healthy children beyond infancy and can be expected to effect a modest reduction in total plasma cholesterol in most. It is a practical and effective way to achieve an important preventive measure.

The second area I will address is the atherosclerotic risk factor known as sedentary life style. Sufficient data relating risk factors to children will not be available for many years, so there is little evidence linking the lack of physical activity in childhood with coronary heart disease later in life. However, it is reasonable that if regular exercise is beneficial in adulthood and if habits are formed in childhood, then the encouragement of regular physical activity in childhood probably should be fostered and encouraged. It must be remembered that children's constant changes in size and physiology should be taken into account when recommendations regarding fitness, exercise and exercise testing are concerned.

The major goal is to develop in the child the desire to maintain a physically active lifestyle that will persist through adolescence and adult years. These exercise habits should lead to the development and maintenance of a healthy and efficient cardiovascular system. Regular exercise should help reduce other atherosclerotic risk factors.

Specifically, the exercises which best achieve the requirements for cardiac conditioning include jogging, rowing, stationary cycling, swimming (laps), skiing, basketball, calisthenics, handball, racquetball, soccer, squash, tennis (singles) and walking.

Exercises which probably do little to condition the individual include baseball, bowling, football, golf, softball and volleyball.

Children divide their time between home and school, and that is where habits are formed. Since parents and siblings serve as the major role model of most children, good exercise habits should be present in the entire family.

There are two areas the school can help in establishing habits of regular conditioning exercises: (a) health education should be more attractive, interesting and informative for children of differing ages; and (b) activities during physical education period should be rhythmic, use large muscle groups and should be sustained for an adequate amount of time. These activities will usually not selectively eliminate the less skilled child. These activities will also be those most likely to be continued and carried into adult life.

Because of the unique nature of children's bodies, certain facts should be kept in mind when planning physical activities for children. Pressure, stress and competition should not be placed on children and what could be enjoyable may become a disaster and discourage continued physical activity.
The pre-adolescent lacks complete development of fine motor control and hand-eye coordination is not yet fully developed. Skilled competitive athletics have no place at this time. Athletic programs at this age should include total body activities such as running, swimming, cycling and hiking.

At pre-high school age, epiphyses, are still not fused when growth sports are beginning to occur. Soccer, basketball, volleyball, swimming are good sports for this age group. Contact sports should still be avoided.

At high school age, especially in the last two years, epiphyses are fusing, bones are becoming fully calcified and growth is slower. More competitive and contact sports can be allowed, but still life-long activities should be encouraged.

Physical conditioning to maintain cardiovascular health should become as habitual as brushing ones's teeth to maintain good dental hygiene.

And lastly, I'd like to address cigarette smoking which is by far the leading avoidable cause of death in the U.S. today.

A large majority of adult smokers begin the habit before the age of 21 and smoking habits in youth appear to determine lifetime cigarette consumption. Moreover, there is evidence that the incidence of both CHD and hypertension, one of the chief risk factors for CHD, is highest and earliest among those who begin smoking at less than 20 years of age.

Since 1968 there has been a decrease in smoking among adolescent males; however, in spite of this, over 11% of males were smoking in 1979. Smoking rates among adolescent females increased over the same period.

Clearly, the prevention of smoking in children and adolescents should be assigned the highest priority by health care providers, parents and educators. A promising approach involves isolating reasons for smoking in teenagers as a practical means of preventing adolescent smoking.

Smoking by parents, older siblings and close friends all predict smoking in adolescents. Smoking by parents and older siblings, in particular, carves the incorrect, inappropriate and dangerous messages that this is a desirable activity; that it is a way of appearing mature; that smoking can provide a means of relaxation and relief from stress; and even that smoking is a way of releasing anger.

The most successful smoking prevention programs have been conducted in schools and have involved various types of skill training. Techniques have included films, video tapes, live adult role models and live "peer" leader role

models. Intervention programs using short films explaining peer pressure or tobacco advertising and their influence have been more effective than information oriented fear arousal interventions. Programs using both peer role models and role-playing have proven to be most effective of all these approaches.

One in four regular smokers die prematurely from smoking. It is, therefore, imperative that the AHA and health care providers establish smoking prevention as a top priority. Given the marginal success of most smoking cessation programs for adults, prevention of new smoking among adolescents represents the most promising and effective strategy for eliminating this major public health problem.

Recognizing the importance of establishing heart healthy lifestyle behaviors early in life, and the potential for health education targeted towards pre-school children, the American Heart Association has developed a heart health education program designed for use with three, four, five and six-year old children. The program, called the HEART TREASURE CHEST, is composed of a curriculum guide for teachers, five "Heart Notes" newsletters for distribution to parents, and a collection of learning materials (e.g., audio tapes, posters, games, picture cards, film strips, stethoscopes) for classroom use. The preventive heart health curriculum consists of three special teaching/learning modules to be presented in three weeks. The three modules are entitled: "The Work of the Heart and Ways to Tell if it's Healthy," "Physical Activity and Rest," "Heart Healthy Foods." A complete set of promotional materials, including training aids for Heart Association staff and volunteers as well as classroom teachers, completes the program package.

The Heart Treasure Chest Evaluation Project, conducted in 1984-85, was a planned, systematic approach towards assessing and evaluating the effectiveness of the HTC curriculum for young children. The general goals of the evaluation were as follows:

a) To assess the appropriateness and effectiveness of the Heart Treasure Chest program in a variety of learning settings where the education of young children takes place.

b) To determine the Heart Treasure Chest's utility and acceptibility as judged by professional experts, teachers, parents and children.

c) To examine the impact of this special heart curriculum on heart health knowledge (i.e., the understanding of "key concepts" identified with the program).

On-going formal evaluation of the program continues. From the introduction of the program in January, 1985 to the present date, forty-seven of our fifty-five affiliates have indicated plans to use the program this year. This has made the American Heart Association a trail-blazer in the field of early childhood health education. Our SCHOOLSITE PROGRAM focuses on ages 3-18 to help people choose lifestyles which can lead to improved heart health by establishing the following heart-healthy goals.

1. Remaining a non-smoker throughout life.

2. Making informed and healthful food choices.

3. Developing a habit of regular physical exercise and weight control.

4. Maintaining a blood pressure within normal limits.

5. Understanding anatomy, physiology and cardiovascular diseases in order to recognize real or potential problems related to risk factors of heart attack and stroke.

The delivery mechanisms by which the various parts of the program reach the classroom teacher and students varies from a simple process of making materials available for purchase from a local American Heart Association office to a well-defined, well-organized system or targeted implementation through local volunteers.

Our programs and materials are promoted as teacher aids for teaching healthy education at all levels according to the local school curriculum process and procedures. In addition, teachers learn about materials, methods and risk

factor concepts through in-service, pre-service and continuing education activities provided by the local AHA.

Through programs targeted to our youth during the years when lifestyle habits are formed, the American Heart Association seeks to influence the adoption of heart-healthy habits.

By providing materials, with content based upon sound science, which are attractive, easy to use and have been field-tested successfully, we are able to provide classroom resources for local curriculum planners. In addition, the wide range of volunteers available to serve as resources for planning as well as local participants as guest speakers in school programs helps provide support for educators interested in promoting heart health concepts in their programs.

Senator HAWKINS. It is a great kit. I just circled the one that says "Don't Smoke" and put it by Senator Dodd's chair, in his absence. A cute game. Did I hear you say volunteers teach it in schools?

Dr. SCHEIKEN. There are different ways of implementing this. Certainly there are teacher's aides, and there also are——

Senator HAWKINS. It is a real cute game, and a clever box. I commend you for the design of that. Do you have different programs for different ages of children?

Dr. SCHEIKEN. Yes. There is one that goes 3 to 6, and another program goes all the way up through senior year in high school.

Senator HAWKINS. Senator Metzenbaum and I cosponsored the legislation to require fat and sodium labeling on processed foods, because we think this is the necessary information that consumers need in order to make informed choices.

Do children have to watch cholesterol and sodium intake?

Dr. SCHEIKEN. Yes. I think most assuredly that they do. In particular, we would call attention to the fact that there are children in families whose, perhaps parents, and certainly grandparents, may have had coronary heart disease.

If a large number of their relatives have had coronary heart disease, especially if that disease started before age 55, those children are at risk of developing coronary heart disease as adults.

These children should be—and there are a large number of them, because we have an epidemic of cardiovascular disease in this country—these children, in particular, should have their plasma cholesterol monitored, and should be on a diet that reduces their cholesterol to appropriate levels.

We think that all children, all healthy American children ought to know about these kinds of diets, and that they are appropriate and that they should be urged, and be an option for children.

I think perhaps it is a bit premature to urge a widespread public health measure to say that all children have to eat this diet, but I think that all children ought to know about this diet; that parents who are concerned about heart disease, ought to have the option of feeding their children a healthy diet; and that in particular, we can identify children at particular risk of developing symptomatic coronary heart disease as adults. And that they, in particular: should have the opportunity to be able to read the labels, and make sure that they are going to have food that has the appropriate low amount of fat, low amount of cholesterol, and low amount of saturated fats. So, we thank you very much for your efforts.

Senator HAWKINS. Thank you. I will ask the other Senators to read the record, so they can sign on as cosponsors.

Dr. Harsha, would you give your statement at this time.

Dr. HARSHA. Thank you very much for having me, by the way. I represent the National Research and Demonstration Center which operates from the LSU Medical Center in New Orleans, where a pediatric heart disease research program, examining the origins of heart disease throughout childhood, and on into early adulthood, and I have just a very brief statement to read.

During the last 15 years, the public in the United States has become increasingly involved in fitness and personal health programs. It is estimated that as many as 60 to 80 million people in

this country regularly engage in some kind of exercise regimen, and the benefits of these efforts appear to be increasing.

Mortality and morbidity from cardiovascular and related diseases have declined steadily since the mid-1970's.

Although a number of factors are responsible, changes in lifestyle, focusing on fitness, proper diet, and weight control, are clearly crucial elements. Such lifestyle patterns are most effectively instilled in childhood. A great deal of evidence demonstrates the childhood origins of heart disease.

We know from our research on children in south Louisiana, that those individuals who are high for a particular heart disease risk factor—blood pressure, blood fats, obesity, et cetera, that is, relative to their peers, are likely to remain high into adulthood.

This makes childhood an extremely important period for combating later overt disease and improving the quality of adult life.

For this reason, recent reports of increased levels of obesity and sedentary habits in children are doubly disturbing.

Although this may not be a national trend, any deviation from the healthier behavior patterns of today's adults will make tomorrow's adults more prone to a variety of debilitating and costly diseases.

Public policy should therefore reflect concerns for appropriate lifestyle starting in childhood. Programs for teaching intelligent, informed decisionmaking in food selection, exercise, weight control, stress reduction, and smoking prevention, must begin with children and should involve those forces which shape childhood value systems—the family, schools, and peer groups. Future benefits of such programs may be incalculable.

[Information supplied for the record follows:]

Relationship of Changes in Obesity to Serum Lipid and Lipoprotein Changes in Childhood and Adolescence

David S. Freedman, PhD; Gregory L. Burke, MD; David W. Harsha, PhD; Sathanur R. Srinivasan, PhD; James L. Cresanta, MD; Larry S. Webber, PhD; and Gerald S. Berenson, MD

● To assess relationships between increases in triceps skin-fold thickness (TRSF) and changes in levels of serum lipids and lipoproteins in early life, a biracial sample of 1,000 five to 12 year olds were reexamined five years after an initial examination. Significant positive correlations, controlled for age, were observed between changes in TRSF and changes in levels of serum total cholesterol, serum triglycerides, and low- and very low–density lipoprotein cholesterol. Inverse associations between changes in TRSF and high-density lipoprotein cholesterol were weaker, but also statistically significant. Although females showed the largest increases in TRSF, most associations were stronger in males. Increases in estimated percentage body fat and ponderal index (kilograms per cubic meter) were highly associated with changes in TRSF, but showed slightly different associations with the serum lipids and lipoproteins. Results show that increases in obesity in youth are accompanied by an increasingly atherogenic lipoprotein profile.

(JAMA 1985;254:515-520)

NUMEROUS epidemiologic studies have found serum lipid and lipoprotein levels to be predictive of cardiovascular disease in adults.[1-4] Since the pathological precursors of cardiovascular disease begin in youth,[5] recent studies have examined serum lipid and lipoprotein levels in children.[6-8] In addition, longitudinal studies of children in Bogalusa, La.,[9] Muscatine, Iowa,[10] Cincinnati,[11] and Beaver County, Penn.,[12] indicate that levels of these serum risk factors measured at one examination are predictive of follow-up levels (tracking).

Levels of serum lipids and lipoproteins are related to adiposity. Positive cross-sectional associations between various indices of obesity with serum total cholesterol (TC), serum triglycerides (TG), and low-density lipoprotein cholesterol (LDL-C) in both adults and children have been reported; high-density lipoprotein cholesterol (HDL-C) is inversely associated with these indices.[6-8] (In earlier reports we have used electrophoretic nomenclature for the serum lipoproteins. The corresponding ultracentrifugal nomenclature is α-lipoprotein cholesterol indicates HDL-C, β-lipoprotein cholesterol, LDL-C; and pre-β-lipoprotein cholesterol, very low-density lipoprotein cholesterol [VLDL-C].) In addition, prospective studies in middle-aged and adolescent cohorts have indicated that increases in obesity are positively associated with changes in levels of TC, TG, and LDL-C.[8,9] These longitudinal analyses provide further evidence of a causal relationship between obesity and levels of serum lipids and lipoproteins as interindividual variation is controlled. However, the longitudinal relationship of obesity to changes in serum lipid and lipoprotein levels in children has received little attention.

This article examines the five-year longitudinal relationship of changes in triceps skin-fold thickness to changes in levels of TC, TG, LDL-C, VLDL-C, and HDL-C in children who were initially aged 5 to 12 years. Longitudinal relationships of changes in both ponderal index (kilograms per cubic meter) and estimated percent body fat to changes in the serum lipids and lipoproteins are also assessed. In addition, the hypothesis

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that changes in obesity could increase the prediction of follow-up serum lipid and lipoprotein levels is tested.

METHODS

Study Population

The Bogalusa Heart Study is a long-term epidemiologic study of cardiovascular disease risk factors in children from birth to 35 years of age.[7] All children residing in Bogalusa, La (approximate population, 22,000), are eligible. Anthropometric, demographic, blood pressure, serum lipid and lipoprotein, nutritional, and behavioral data are gathered in this biracial population (64% white, 36% black). From 1972 to 1982, four cross-sectional surveys were conducted for cardiovascular disease risk factors in Bogalusa school-age children.[8] During the 1973-1974 (year 1) survey, 3,524 children (92% participation), ages 3 to 14 years were examined. In the 1976-1977 (year 4) survey, 4,074 children (88% participation), ages 5 to 17 years were seen. In the 1978-1979 (year 6) and 1981-1982 (year 8) surveys of children ages 5 to 17 years, 3,580 and 3,312 children were examined, representing 83% and 80% participation, respectively.

Of the 3,524 children examined in year 1, 2,716 five to 12 year olds (mean age, 8.4 years) having both TC and triceps skinfold measurements were considered eligible for reexamination five years later. Of these, 1,586 (58%) actually participated in the year 6 survey. Analyses involving TG, HDL-C, LDL-C, and VLDL-C were further restricted to children who were fasting at both surveys (n=1,264). Mean age of the cohort at follow-up was 13.6 years.

A second cohort of children was followed up between the year 4 and year 8 surveys, another five-year period, to verify findings based on the original cohort. Similar restrictions resulted in 1,415 (57%) individuals, out of an eligible 2,462, available for analyses involving changes in TC levels. Analyses involving TG and lipoprotein cholesterols were limited to 1,089 fasting children.

General Examinations

Identical protocols were used in all four examinations.[7] Height was measured to the nearest 0.1 cm, weight to the nearest 0.1 kg, and triceps skin-fold thickness to the nearest 1 mm. Based on a 10% random sample of year 1 children, the intraexaminer standard deviation of measurement error for triceps skin-fold thickness was 0.91 mm (coefficient of variation for measurement error, 7.2%); reliability (intraclass correlation coefficient) was 0.99.[9] Ponderal index (kilogram per cubic meter), a measure of obesity,[9] was calculated for each child.

Estimated percent body fat was obtained using linear regression equations, developed locally from a separate study, in which 242 six to 14 year olds were weighed under water.[9] Percentage body fat was computed using the formula of Siri[10]: (495/density)−450. Regression equations using height, weight, and triceps skin-fold thickness as independent variables in predicting percentage body fat were computed. The regression equation predicting body fat for boys was as follows: (4.72×0.2×triceps skin fold (mm))−0.22×height (cm)+0.7×triceps skin fold (mm). Corresponding intercept and regression coefficients for girls were 12.09, 0.14, −0.13, and 0.58. The correlation between estimated percentage body fat and percentage body fat as determined by densitometry was 0.72 for boys and 0.73 for girls. In the current study, estimated percentage body fat was highly correlated (r, .88 to .91) with both triceps skin-fold thickness and ponderal index throughout the entire 5- to 17-year age range.

Serum Lipids and Lipoproteins

Children were instructed to fast for 12 hours prior to examination, at which time venipuncture was performed. After clotting and centrifuging of the venous blood, serum samples were shipped at 4 °C to New Orleans. Levels of TC and TG were measured, in a standardized laboratory, with an autoanalyzer (Technicon Auto-Analyzer II) according to the Lipid Research Clinics methods manual.[11] A 10% random sample of the study population was selected for blind duplicate determinations.[9]

Serum lipoprotein, LDL-C, VLDL-C, and HDL-C levels were analyzed by a combination of heparin-calcium precipitation and agar-agarose gel electrophoresis procedures. Details and reliability of the method have been described elsewhere.[9,11]

Statistical Methods

Correlation coefficients were used to examine associations between triceps skin-fold thickness changes and changes in the levels of serum lipids and lipoproteins. Although distributions of most variables were slightly skewed, marked differences from normality were not observed. Both Pearson correlations on log-transformed data and Spearman correlations yielded virtually identical results to those obtained using Pearson correlations on the original data. Thus, only results of analyses using Pearson correlations on the original data are shown.

Since age was related to changes in triceps skin-fold thickness (r_s=−.23), partial correlations, controlled for initial age and/or initial level of triceps skin-fold thickness, were also calculated. Controlling for age slightly altered the strengths of the associations and in several analyses only the partial correlations are shown. Preliminary analyses indicated that triceps skin-fold thickness was highly associated with the other two measures of obesity, an r value of .82 for estimated percentage body fat and .81 for ponderal index. Differences in the associations between longitudinal changes in the three indices of obesity and serum lipids and lipoproteins are presented.

The significance of triceps skin-fold thickness change in predicting year 6 levels of each serum variable was also assessed after controlling for initial levels of the serum variable. The proportion of variation in year 6 serum lipid or lipoprotein level, statistically explained (r^2) by either year 1 level of that serum variable or year 1 serum variable level and change in triceps skin-fold thickness, are compared.

Because of the possibility of laboratory drift in serum lipid and lipoprotein levels,[12] absolute levels in the four surveys should be compared with caution. However, a systematic bias in the measurements of either the corpus variables or triceps skin-fold thickness would not affect correlations between initial and follow-up levels or affect comparisons between the race-sex groups.

RESULTS

Description of the Sample

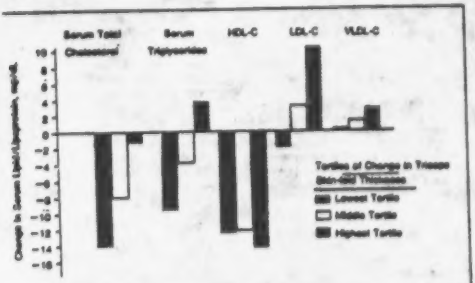
Children in the study cohort tended to be slightly younger at year 1 compared with children not reexamined five years later (mean age, 8.4 vs 8.4 years). In addition, black children were overrepresented in the study cohort; making up 42.6% of the study cohort, but only 36.1% of the children lost to follow-up. Covariance-adjusted (for race, sex, and age) mean levels of selected year 1 variables are given in Table 1. Mean levels of almost all characteristics are similar between the two groups. However, at year 1, children not reexamined at year 6 had slightly higher ponderal indices than did children in the study cohort (P=.04).

Change in triceps skin-fold thickness was only weakly related to its initial level (r=.06). Mean levels of triceps skin-fold thickness change were elevated in females, with black girls showing the largest mean increase in triceps skin-fold thickness (7.2 mm); followed by white girls (6.2 mm), white boys (3.7 mm), and black boys (2.5 mm). (Standard deviations of skin-fold thickness change ranged between 5.2 for black girls and 7.2 for black boys.) Mean year 1 levels of

ble 1.—Initial Levels of Selected Variables in 1973-1974 (Year 1) Bogalusa Heart Study*

Variable†	Study Cohort (n=1,696), X ± SD	Children Examined in Year 1, but Not at Follow-up (n=1,156) X ± SD
TC, mg/dL	166.0 ± 30.7	168.5 ± 29.3
TG, mg/dL‡	67.2 ± 30.7	69.6 ± 30.5
HDL-C, mg/dL‡	60.3 ± 22.6	58.5 ± 22.7
LDL-C, mg/dL‡	90.5 ± 23.7	95.7 ± 23.6
VLDL-C, mg/dL‡	7.6 ± 6.3	8.0 ± 7.7
Triceps skin-fold thickness, mm	11.5 ± 5.6	11.5 ± 5.7
Estimated body fat, %	25.6	25.9
Ponderal index, kg/cm m	13.6 ± 1.56	13.6 ± 2.01

*Covariances adjusted for differences in age, race, and sex.
†TC indicates serum total cholesterol; TG, serum triglycerides; HDL-C, high-density lipoprotein cholesterol; -C, low-density lipoprotein cholesterol; and VLDL-C, very low-density lipoprotein cholesterol.
‡Fasting children only, n=1,264 and n=1,041.
§P<.05.



g 1.—Relationship of changes in triceps skin-fold thickness to changes in serum lipid and lipoprotein levels in children over a five-year period. Mean changes in serum lipid and lipoprotein levels within tertiles of triceps skin-fold thickness change are shown. Mean levels of ceps skin-fold thickness change within tertiles are −0.7 mm, 4.2 mm, and 10.7 mm. HDL-C dicates high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; and -DL-C very low-density lipoprotein cholesterol.

Table 2.—Correlations of Triceps Skin-fold Thickness Change Over Five Years to Changes in Levels of Serum Lipids and Lipoproteins*

Obesity Indices	Serum Lipids and Lipoproteins† ΔTC	ΔTG	ΔHDL-C	ΔLDL-C	ΔVLDL-C
Simple correlations					
Change in triceps skin-fold thickness	.21	.17	−.09‡	.26	.16
Change in estimated body fat	.19	.16	−.09‡	.26	.13
Change in ponderal index	.09§	.20	−.10§	.16	.16
Controlling age					
Change in triceps skin-fold thickness	.19	.17	−.07§	.26	.15
Change in estimated body fat	.20	.17	−.08‡	.26	.14
Change in ponderal index	.13	.23	−.10§	.23	.19
Controlling age and year 1 triceps skin-fold thickness					
Change in triceps skin-fold thickness	.19	.17	−.07§	.26	.15
Change in estimated body fat	.20	.16	−.09‡	.27	.14
Change in ponderal index	.13	.23	−.10§	.22	.19

*P<.0001 except where noted.
†TC indicates total cholesterol; TG, serum triglycerides; HDL-C, high-density lipoprotein cholesterol; DL-C, low-density lipoprotein cholesterol; and VLDL-C, very low-density lipoprotein cholesterol.
‡P<.05.
§P<.01.

triceps skin-fold thickness in the race-sex groups were as follows: white girls, 13.4 mm; white boys, 11.4 mm; black girls, 10.9 mm; and black boys, 9.1 mm.

Associations of Obesity to Levels of Serum Variables

Cross-sectional correlation coefficients (at year 6) between triceps skin-fold thickness and the serum variables were .19 for TC, .13 for TG, −.05 for HDL-C, .22 for LDL-C, and .08 for VLDL-C. Associations of triceps skin-fold thickness changes with changes in serum lipids and lipoprotein levels are shown in Fig 1. Levels of TC decrease during follow-up in all triceps skin-fold thickness tertiles, primarily because of a 12.9-mg/dL mean decrease in HDL-C levels. Increases in triceps skin-fold thickness are positively related to changes in levels of TC, TG, LDL-C, and VLDL-C, but only weakly to decreased HDL-C levels.

Table 2 gives simple and partial correlations of changes in the obesity indices to changes in levels of serum lipids and lipoproteins. Simple correlations of changes between ponderal index with both TC and LDL-C are weaker than correlations of the other obesity indices to these serum variables. However, these differences are reduced when age is controlled. Associations do not further change when, in addition, year 1 triceps skin-fold thickness is controlled for. Almost all correlations (with the exception of those involving HDL-C) are significant at the .0001 level.

Partial correlations, controlled for age, of triceps skin-fold thickness change to serum lipids and lipoproteins are given in Table 3. Triceps skin-fold thickness changes are associated with serum lipid and lipoprotein changes during follow-up and with year 6 follow-up levels. With the exception of follow-up HDL-C levels, all associations are stronger in males than in females. Within each sex, correlations are usually slightly stronger for whites than for blacks. Similar race-sex differences were observed using either estimated percentage body fat or ponderal index as a measure of obesity (data not shown).

The possibility that skin-fold thickness change could help predict follow-

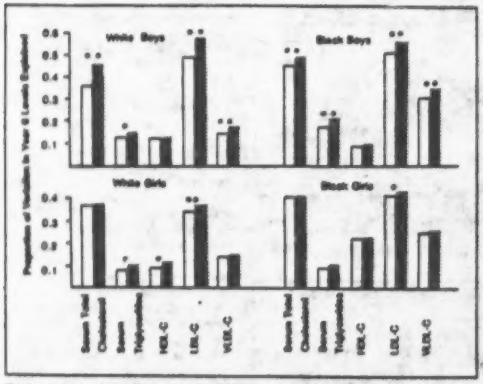


Fig 2.—Increases in prediction of five-year follow-up levels of serum lipids and lipoproteins by use of triceps skin-fold thickness change. The proportion of variation in follow-up levels explained by either (1) initial level of that variable or (2) initial level and change in triceps skin-fold thickness are compared. Significantly increased prediction of follow-up levels by adding triceps skin-fold thickness change to the regression models: Solid bar indicates bivariate r^2; hatched bar, multiple r^2; single asterisk, $P<.01$; double asterisk, $P<.001$. HDL-C indicates high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; and VLDL-C, very low-density lipoprotein cholesterol.

Table 3.—Partial Correlations* of Triceps Skin-fold Thickness Change Over Five Years to Serum Lipid and Lipoprotein Changes and Follow-up Levels

Serum Lipids and Lipoproteins†	Change, Δ or Follow-up	White Boys (n=465)‡	White Girls (n=437)	Black Boys (n=326)	Black Girls (n=333)
TC	Δ	.30§	.20	.14‖	.11
	Follow-up	.19§	.01	.21§	.09
TG	Δ	.39§	.19¶	.25§	.10
	Follow-up	.33§	.11	.33§	.14
HDL-C	Δ	−.14‖	−.19¶	−.18¶	−.09
	Follow-up	−.10	−.14‖	−.08	−.11
LDL-C	Δ	.33§	.24§	.26§	.17¶
	Follow-up	.20§	.09	.29§	.12
VLDL-C	Δ	.30§	.19¶	.27§	.08
	Follow-up	.30§	.08	.14‖	.09

*Controlled for age
†TC indicates total cholesterol; TG, serum triglycerides; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; and VLDL-C, very low-density lipoprotein cholesterol.
‡Sample sizes are of testing and nontesting children. Number of testing children in each race-sex group are between 66 and 105 less than the indicated sample size.
§$P<.0001$
‖$P<.01$
¶$P<.001$.

up serum lipid and lipoprotein levels was then assessed by linear regression. The proportions of variation in follow-up levels of the serum variables, statistically explained by either initial level of that variable or initial level of that variable and change in triceps skin-fold thickness, are compared in Fig 2. Using change in triceps skin-fold thickness in the regression models increased the prediction of follow-up levels, especially in white boys. For example, r^2 for TC increased from .86 to .45 when triceps skin-fold thickness change was added to the model for white boys.

Verification of Results

Analyses of the five-year follow-up of the second cohort verified many of these findings. Girls showed a greater mean increase in triceps skin-fold thickness than did boys (4.7 mm vs 1.8 mm), and black boys showed a smaller mean increase than did white boys. Overall, changes in triceps skin-fold thickness were related to changes in levels of TC ($r=.16$), TG ($r=.17$), LDL-C ($r=.17$), and VLDL-C ($r=.13$). Triceps skin-fold thickness change was again only weakly related to changes in HDL-C ($r=-.06$).

Partial correlations (controlled for age) within each race-sex group indicated that changes in skin-fold thickness were related more strongly to increments of LDL-C in white boys ($r=.27$) and black boys ($r=.27$), than in white girls ($r=.15$) or black girls ($r=.22$). Similar differences were also noted between males and females for other serum lipids and lipoproteins. White boys again showed the largest increases in multiple r^2 values when triceps skin-fold thickness change was added to regression models predicting follow-up levels of serum lipids and lipoproteins.

COMMENT

Several studies in adults and children have reported cross-sectional associations of various obesity indices to serum lipid and lipoprotein levels.[6-7] In the current study, longitudinal associations between changes in triceps skin-fold thickness and both the five-year changes in these serum variables and their follow-up levels were slightly greater than the observed cross-sectional associations. In general, longitudinal relationships were strongest in white males and weakest in females. The use of triceps skin-fold thickness changes, in addition to baseline levels of the serum variables, led to greater prediction of follow-up serum lipid and lipoprotein levels.

Longitudinal changes in levels of serum lipids and lipoproteins were related slightly differently to the three indices of obesity. Although the most accurate measurement of obesity is obtained by densitometry, it is a cumbersome technique and several different estimates of obesity are in widespread use. Changes in triceps skin-fold thickness and estimated percentage body fat were more closely

related with LDL-C and TC than
s ponderal index. A cross-sectional
ort of 13- to 18-year-olds also
nd, in boys, that skin-fold thick-
ss was more highly related to TC
els than was weight/height².
ices weight-height indices in chil-
n and adolescents are correlated
h height and muscle mass," a more
ect measurement of body fatness,
ch as skin-fold thickness is usually
nsidered preferable. In addition, we
ve previously shown triceps skin-
d thickness to be more highly cor-
ated ($r = .82$) with percentage body
(as calculated by densitometry) in
ldren than are weight-height in-
es." However, the regional distri-
tion of obesity may also be related
levels of serum lipids and lipopro-
ins. Since a male abdominal type of
esity is highly susceptible to the
fects of excess body fat on lipid and
rbohydrate metabolism," measures
abdominal fat distribution may be
ore highly related to serum lipid
d lipoprotein levels than are mea-
res of peripheral fat distribution.

Results from this study are consist-
t with those in adults. Weight gain
657 men, followed up between mean
es of 24 and 48 years, was positively
$P < .05$) associated with follow-up
vels of both LDL-C and VLDL-C." A
ositive association between longitu-
inal changes in body weight and TG
hanges in men has also been
eported." A five-year follow-up of
032 middle-aged women found that
eight gain was related to increases
levels of both TC and TG." Over a
-year period, the Framingham
tudy showed that changes in relative
ody weight were associated with
hanges in TC levels." Another study
162 men found positive associations
etween changes in several indices of
besity (weight, relative weight, Que-
let index [kilogram per square
eter], and the sum of triceps and
ubscapular skin-fold thicknesses)
nd changes in TC levels during 22
ears of follow-up." Weight gain
etween the ages of 18 and 30 to 55
ears has also been shown to be
ssociated with follow-up levels of TG
nd LDL-C, and inversely associated
with changes in HDL-C." In these
ongitudinal studies, changes in obesi-
y were related to changes in serum
ipids and lipoproteins independently
f baseline TC levels," baseline age,"
or baseline obesity."[20] Many of these
same trends are already evident in children and adolescents.

This current study [illegible] compares the effects of obesity changes on changes in levels of serum lipids and lipoproteins among the four race-sex groups. In general, associations were strongest in white boys and weakest in black girls, although black girls showed the greatest increases in triceps skin-fold thickness during follow-up. We have previously reported that white boys show the greatest cross-sectional associations between several indices of obesity and serum lipid and lipoprotein levels." In agreement with our findings, a weaker association of Quetelet index to both TG and HDL-C levels in 12- to 16-year-olds has been found in girls than in boys." Other cross-sectional studies have reported that obesity is not associated with levels of TC, TG, or HDL-C in young black women."[21] Relative body weight has also been found to be related to TC and TG in males, but not in females." Longitudinal analyses in white middle-aged individuals indicate that changes in relative weight may affect changes in levels of TC" and LDL-C" to a greater extent in males than in females.

Differences noted in this current study between the race-sex groups may be due to environmental or hormonal effects. Our dietary studies have not shown marked racial differences in food consumption, although several differences between boys and girls do exist.[4] For example, white boys have greater intakes of fat and total calories than other race-sex groups, and it is possible that these elevated intakes act synergistically with obesity in influencing serum lipid and lipoprotein levels. Moreover, there is evidence that obesity can influence the relationship between lipoproteins and endogenous levels of testosterone and estradiol." Other studies have found that females have a higher fractional TG-removal rate than do males," which could be the result of higher lipoprotein-lipase activity in adipose tissue of females. Elevated TG clearance may permit increased TG production in obese women without a corresponding increase in TG levels.

Since only 59% of the eligible cohort in this study was reexamined at year 6, the observed relationships could possibly be influenced by bias arising from loss to follow-up. Although no initial differences in risk factor or triceps skin-fold thickness levels were observed between individuals unavailable for follow-up and those reexamined at year 6, reexamined individuals were more likely to be black, older, and to have a slightly smaller ponderal index at baseline than those not reexamined. In addition, others have shown that nonsmokers and individuals with a family history of cardiovascular disease are more likely to participate in population-based cardiovascular disease studies." Bias due to nonresponse at follow-up is most serious if participation is related to disease, and independently to exposure." To assess this possibility, partial correlations between characteristics related to nonresponse at follow-up and changes in serum lipid and lipoprotein levels, controlling for triceps skin-fold thickness changes were calculated. Only very weak independent associations were observed. Follow-up bias may also be defined as the joint interaction of participation, exposure, and disease." In the current study, associations of obesity changes to changes in serum lipid and lipoprotein levels were similar over strata defined by paternal myocardial infarction or smoking status. In addition, race- and sex-specific analyses (Table 3 and Fig 2) would not be influenced by overrepresentation of blacks in the study cohort. These findings, in addition to the similarity of the results from the verification cohort, make it unlikely that follow-up bias substantially altered the result.

In this study, between 3% (black girls) and 14% (white boys) of the variation in changing LDL-C levels over a five-year period could be statistically explained by concomitant changes in obesity. Although studies in adults have similarly found that only a small percentage of the variation in longitudinal changes in levels of serum lipids and lipoproteins can be attributed to obesity changes,[20] the effect of weight changes on cardiovascular disease risk in adulthood may be substantial. Based on models developed from the Framingham study," for each 10% increase in weight in 35- to 64-year-old men, a 30% increase in coronary heart disease incidence would be expected due to concomitant changes in levels of

TC and systolic blood pressure.

Obesity-related changes in serum lipids and lipoprotein levels during childhood may play a role in the initiation of atherosclerosis. In adolescents and young adults, TC and LDL-C levels are strongly related to aortic fatty streaks, and VLDL-C levels are associated with fatty streaks in the coronary arteries.[6] Several intervention studies in small groups of obese adults have demonstrated significant relationships between weight loss and antiatherogenic changes in levels of serum lipids and lipoproteins.[7-27] Since the effects of weight loss on cardiovascular disease risk factors may be greater in younger than in older individuals,[7] effective cardiovascular disease intervention should focus on prevention of excessive weight gain in childhood and adolescence. This would result in a less atherogenic lipoprotein profile and reduced cardiovascular disease risk in later life.

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Senator HAWKINS. How do you measure obesity?

Dr. HARSHA. Well, obesity can be measured in a variety of ways, depending on how elaborate and precise one wants to be in the evaluation.

For mass screening purposes, the most common measure of obesity is of course weight-for-height. It is a rough gauge of how lateral one is for every inch of height that one has.

This has several drawbacks. It is correlated with total obesity but is not a perfect gauge of it. A person can be overweight for one's height due to muscularity, for instance, as well as to overt body fat.

A probably more accurate mass screening technique for doing this is something called using a skin-fold caliper, and these are fairly readily available today.

Senator HAWKINS. Please elaborate.

Dr. HARSHA. A skin-fold caliper. It is a device for measuring the thickness of a fold of skin at a selected site on the body, and also, the underlying subcutaneous fat.

Now there are some methodological issues involved with using them, but I think if we, across the United States, decide on a standardized methodology, the skin-fold caliper is the most effective way of determining obesity for large groups of people.

Senator HAWKINS. Are the insurance charts a good guide for proper weight?

Dr. HARSHA. They are generally a good guide. They are, to the extent that a weight-for-height is correlated with obesity as such. As Americans become healthier, and if they become healthier, and become overweight for their height due more to muscularity than to obesity, then these charts are going to be less valuable.

The current charts are generally good indicators of obesity but I think more precise techniques should be used in an individual circumstance to demonstrate that a person is truly obese.

Senator HAWKINS. Dr. Harsha, I understand you are currently involved in a program with the New Orleans school system, that your program is designed to teach children about lifestyle choices, and how to lead a healthier life.

Has the program been in place long enough for you to give us any results?

Dr. HARSHA. Well, we have begun this part of the program starting this fall. It is a pilot program in the school system in Jefferson Parish which is a suburb of New Orleans.

We have done some pretesting at one school up to this point, so the results are really very sketchy. What we have done is based most of this program on our findings in another community where we have simply watched the child population grow from early age into adulthood, and this was purely a descriptive study, and from this, we have decided that it is necessary to intervene in childhood, and we have chosen the Jefferson Parish school system to do that.

So, at this point, we really have very little in the way of results. We are hoping to have quite a bit in the next year or so.

Senator HAWKINS. How long is your study scheduled for?

Dr. HARSHA. Well, our current funding is for 2½ years, and we are reapplying for another 5-year grant, which we hope to be able to acquire.

Senator HAWKINS. I believe you were in the room and heard Bonnie Prudden say that children need to know about nutrition in schools. Will teaching children, in your opinion, reduce their high risk for heart attack?

Dr. HARSHA. Well, the basic problem with most educational programs is that they have stayed entirely educational. It has been demonstarted quite adequately, that you can transmit information to children and they can understand it. They know on an intellectual level that they need to do these things. What is necessary is to take a step beyond that, and make sure that they are acting upon this information. So we need to convey more than jst the facts about heart disease, about appropriate nutrition and exercise.

We need to create the circumstances under which the children want to engage in healthy activities, and this requires a larger social commitment than merely passing on information.

I think the whole process that we are looking at in fact is an alteration of society. Any one program that we are discussing is just sort of one brick in that larger wall of changing the entire social conditions, which govern people's choices about their health, and what activities they engage in.

So, we need to go beyond that. We need to make healthy behaviors something that are attractive and fun for children, and to give them the information on how to make decisions on how to achieve these behaviors.

Senator HAWKINS. Do you know of any computer software program that would be tailored to fitness?

Dr. HARSHA. There are a number that are out on the market that involve exercise to a certain degree, or certain kinds of exercise.

I am unaware of any that would be suitable for an education program of the sort that we are discussing here, although they may be being developed now.

Senator HAWKINS. And we develop information on this committee for the Education Committee also. It just seems that since we are putting computers in all the classrooms, and these children are getting up watching things happen on the screen, you could have a great program developed, with your seal of approval and participation. That way, we could educate children at a very young age.

Dr. HARSHA. It would be good to involve the computer because it has been implicated in sedentary habits.

Senator HAWKINS. I agree.

Dr. HARSHA. If we could involve it as a positive force in making children aware, that would be a very good thing, yes.

Senator HAWKINS. It seems a natural process. I spoke with a man yesterday who is a computer expert, and I asked him who was his teacher. He said his 4-year old child taught him how to use a computer, and for quite some time, in his position in business, he had all the information in his pocket, because no other adult could use the machinery.

So it seems to me we could focus on the 4-year-old child easily in this computer age.

Dr. HARSHA. That is true. In many cases, children are much more sophisticated about computer use than are their parents.

Senator HAWKINS. Thank you both for participating in this record, and I look forward to working with you in the future, on a solution to this problem.

Dr. HARSHA. Thank you very much.

Senator HAWKINS. I would like to note the presence in the room of Patti Dowe, who has a great set of records called "Fit Kids." It is a preschool exercise program leading to lifetime physical fitness. It is specifically designed for parent and child to enjoy together at home. It really is a great program.

Patti, I am glad you are here. Patti is presently coordinator of the Discovery Program at the Toddler Center of New York where she supervises 20 teachers, and develops programs in fitness, gymnastics, dance, music, and art, for over 700 participating children from ages 1 month to 5 years.

We congratulate you for this.

Our last panel is composed of Dr. Ash Hayes, the Executive Director of the President's Council on Physical Fitness and Sports, and our own personal Olympic gold medalist from Jacksonville, FL, Nancy Hogshead. Welcome, both of you, and Dr. Hayes, would you like to begin.

STATEMENT OF DR. ASH HAYES, EXECUTIVE DIRECTOR, PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS, WASHINGTON, DC; AND NANCY HOGSHEAD, FLORIDA GOLD MEDALIST IN SWIMMING, 1984 OLYMPICS, JACKSONVILLE, FL

Dr. HAYES. Thank you, Senator Hawkins. We commend you for embarking on this effort to help improve the fitness and health of America's children, and we appreciate this opportunity to speak to you.

As you know, the President's Council originated under President Eisenhower, and it was then called the President's Council on Youth Fitness.

Since then we have been given other responsibilities, but we currently have reestablished youth fitness as our No. 1 priority.

Before I go any further I would like to say that we have a program that is carried out in cooperation with the Junior Chamber of Commerce, and the All-State Insurance Co., as an appropriate sponsor, called "The Healthy American Fitness Leaders."

This is a program based somewhat on the 10 outstanding young men program of the JC's, and both Richard Simmons and Bonnie Prudden have been recognized in the last couple of years as healthy American fitness leaders.

A lot of the evidence that we have today indicates that we do have to reestablish some heavy emphasis in this area. One other sidelight. There are some computer programs and I will provide you with a book that has some information about that.

Senator HAWKINS. Good. Thank you.

Dr. HAYES. We are involved in a computerized program called a Fitness Gram, which is a physical fitness report card. It is a cooperative program at the Professional Association for Physical Educators. Campbell Soup is the corporate sponsor. The Institute for Aerobic Research, Dr. Ken Cooper's establishment in Dallas, does the

computer work, and this is a very successful pilot program, and is now expanding throughout the country.

My experience has been teaching physical education, health, and supervising those programs at the university level and the public school level, and I have to say that we have to be very careful about generalizing on the condition of programs and the condition of the fitness and health of our children.

There are great variabilites. There are many excellent programs in physical education throughout the country, and we need to recognize that.

We know that physical fitness is important in the growth and development of children. We know that it is extremely important in the development of abilities to perform physical activities, that we have to do at work, at play, our recreation, and it also is a great enhancement to health.

The particular components of course, we will not deal in, in detail at this time, but there are a variety of components of fitness, each of which require different kinds of exercise, and there is no particular exercise that will do everything for all of the components.

The evidence is very clear, that the development of a regular exercise program will improve the metabolism of the body both in growing children and in adults, and the ideal way to attack the fat deposit problem—I prefer to talk about people being overfat or overweight. It is a little more clear description.

We need to encourage people to recognize nutrition and exercise, and the combination of those can have a dramatic effect, and is the only way to have an effect, unless there is some biochemistry problem that requires some other medical attention and appropriate medical treatment.

We know that to improve fitness, as Richard so eloquently described, will improve a child's self-image, self-confidence, and this is extremely important in the carryover to all kinds of behaviors and performance

We know that inactive and obese children will become obese adolescents, who will become obese adults, unless there is some significant intervention, and that takes a variety of approaches. We had a series of hearings last year requesting information on the status of youth fitness throughout the country, and the evidence indicated very clearly, that this is a serious problem, that fitness levels are lower than they have been in previous years.

We are assembling some information at this time to make a comparison. We have a contract with the University of Michigan to conduct the American Alliance for Health, Physical Education, Recreation and Dance, which we call AAHPERD, national youth fitness test, which measures health fitness components as well as performance fitness components.

This test was administered in 1957, 1965, 1975, and again now, so we will have some very good data to look at, on how our kids compare with previous years.

Our hearings indicate that there have been some program reductions, changes in priority in schools, and public recreation, and youth agency programs.

We know that program content has varied somewhat in recent years with the individualization of education, and providing more electives. There had been some deterioration on the emphasis on fitness in the school curriculum, and we need to reestablish a good emphasis.

And of course we know that kids in their free time are spending a lot of hours in inactive ways which, many are very educational, but not conducive to fitness. Maybe we should attach a generator to a treadmill and require that kids run while they are revving up the energy to watch television.

We have a great variety of statistics that are in the report we presented to you, and I will not bother to repeat all of that.

Last year, we had a national conference addressing the problem of youth fitness with which educational groups were involved, administrators as well as physical education professionals, public recreation, and youth agency groups.

Out of that came some suggestions about how to reemphasize youth fitness, and, of course, this takes a variety of avenues. There is no one simple solution.

We must make sure that the decisionmakers, the boards of education, the city managers, the school administrators, who establish priorities, and allocation of funds, and district and city and community policies, do recognize the importance of this in the total development of children.

We need to make sure that the leadership is there. That the professional training of physical education teachers, recreational leaders, and others, includes an adequate understanding of fitness, and how it relates to the growth and development of boys and girls.

We need to make sure that there are ample administrators, supervisors, consultants, who provide materials and assistance, to give direction to these programs. We know a number of school districts throughout the country where there is no person available, other than the teachers themselves, who oftentimes have to teach math and language, and other subjects, and there is no consultant, or even a college or university person available to give them assistance and direction.

And of course we know that the program itself has to be designed to include the right kind of fitness, vigorous activities.

One minor example I would like to mention is a research study that was carried out in which the schools decided they wanted to emphasize fitness. They established a longer period of time to zero in on this important area.

They found this time by taking it away from the time spent on teaching math, language, and social studies. At the end of the study which covered grades 1 through 6, they found that the fitness levels did improve, but their language and their spelling, and their math performance also improved, even though the teachers were spending less time on those subjects during the school year.

There is no question but that this is an important area. We need to reestablish some priorities and support good programs, and help describe good programs, so that people can move in that right direction.

Thank you.

[The prepared statement of Dr. Hayes follows:]

THE PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS
WASHINGTON, D.C. 20001

SENATE SUBCOMMITTEE ON CHILDREN, FAMILY,

DRUGS AND ALCOHOLISM

Testimony:
President's Council on Physical Fitness
and Sports

September 24, 1985

Regular appropriate exercise is a significant factor in developing and maintaining the components of physical fitness. Muscular strength and endurance, cardio-respiratory endurance, flexibility and lean body mass results from regular bouts of exercise. Exercise also plays a major role in maintaining proper body weight and the development of motor skills and positive self image. Cardio-respiratory endurance is developed by continual rhymical activity performed at submaximal levels. Continuous exercise sessions of at least twenty minutes a day provide the minimum amount of time necessary for cardio-respiratory improvement to occur.

Skeletal-muscular strength is developed by systematically overloading those systems. Muscles that are taxed more than 50% or more of their capacity will grow in size and strength. Resistance exercises

can increase the strength and size of skeletal bones and increase lean body mass. Exercise increases the bodys metabolic rate and this often persists after exercise. For example, the metabolic rate may remain elevated for 6 - 24 hours after moderate exercise that lasts only twenty minutes. Extreme food restrictions causes loss of both body fat and lean body mass (muscle). Conversely exercise promotes fat loss and increases body mass. To reduce body fat two activities must occur, increase the expenditure of caloric expenditures through exercise, and modify caloric intake. The increase in basal metabolic rate resulting from exercise, provides additional benefits of caloric expenditure beyond the actual period of exercise. It is a sometimes forgotten benefit of exercise to weight control.

Personal gains in physical fitness are accompanied by increases in self image, confidence and motor skills. The child that is in good

physical condition has more energy and tends to participate in physical activities more often than the unfit or deconditioned child who tends to draw back from activities that call for physical skills and abilities. Some inactive children exhibit some of the health risk factors of adults. Heart disease begins in childhood - 60% of children 5-8 years of age show one or more of the following heart disease risk factors: elevated blood pressure, high cholesterol, and physical inactivity.

A recent study by the Department of Health and Human Services reports that 80% of our youths physical activity is performed outside of school physical education classes and research shows that children at routine play do not exercise vigorously enough to improve their fitness.

It is clear that regular appropriate exercise can increase physical fitness and cause a decrease in body weight without alterations in diet. Therefore, there should be serious concern about the following:

In 1984 the PCPFS conducted hearings on Youth Fitness in six major US cities. The testimonies presented at these hearings were shocking and pointed out the seriousness of youth fitness in the U.S. today. The following is a sample of the results:

1. Fitness levels of children are inadequate, but the real problem is that there is a significant trend downward in performance from grade 10 on.
2. Elementary schools teach PE on the average of 20 minutes one day a week.
3. Thirty percent of 6 - 12th graders failed physical fitness tests in Houston in 1983!
4. In California, 3/4th of all public schools studies have terminated or reassigned physical education teachers since 1977.
5. One out of six boys age 10 cannot do one pullup.

6. Two-thirds of our nations youth in grades 5 - 12 do not have daily PE.

7. In 1978, San Diego had after-school recreation leaders at 97 elementary schools; today, none!

8. Today, less than half of the nations school districts have programs for the physically underdeveloped children.

9. Sixty-one percent of the women in the Air Force Academy Class of 1987 could not do one pullup and these are the best of our high school graduates.

10. In one month, 13,000 of 48,000 army volunteers were rejected for physical and mental reasons. Many of these were orthopedic problems, hypertension and cardio-vascular disease.

The PCPFS has designated "Youth Fitness" as its first priority. The Council has developed cooperative programs with State Departments of Education to increase the level of physical fitness of youth through its Demonstration Center School Project, State Physical Fitness Champions, Regional Clinics on Physical Fitness and Sports leadership training programs for teachers and the Presidential Physical Fitness Awards program.

SUMMARY

Regular appropriate exercise programs will increase the physical fitness of children through increases of muscular strength and endurance. Regular exercise assists in reduction of fat deposits of overweight individuals through metabolic processes that increases caloric expenditure. Although the U.S. has superior physical sports and fitness programs for some children, many are deprived of the opportunity

to receive instruction through required school physical education requirements. Health problems such as high blood pressure and heart disease have been found to exist in elementary school-age children. It is incumbent upon the educational leaders in our country to develop adequate requirements for health and physical education programs in elementary and secondary schools. Many experts agree that adult health problems result from unhealthy lifestyles that include cigarette smoking, overeating, abuse of alcohol and drugs and lack of physical inactivity.

Ash Hayes
Executive Director

Senator HAWKINS. We thank you very much. I would like to stay in touch with you, as you get the results of those tests.

We are always happy to see you, Nancy.

Ms. HOGSHEAD. Thank you.

Senator HAWKINS. You will remember Ms. Hogshead is the winner of more medals, three gold and one silver, than any other swimmer in the 1984 summer Olympics. This past summer, Nancy worked for the Women's Sport Foundation in San Francisco and is presently a senior at Duke University—still majoring in political science and women's studies——

Ms. HOGSHEAD. Yes.

Senator HAWKINS [continuing]. And in her spare time, she promotes sports and sports opportunities. We are so pleased and honored to have you take the time to be with us today.

Do you have a statement?

Ms. HOGSHEAD. Yes, thank you. I am very honored to be here, pleased to be involved in something like this, and I commend you for holding these hearings.

I hope my comments will be illuminating on some of the problems and some of the positive things that I see in sports, or just in being physically fit.

You heard from some of the other panelists about statistical findings and problems, and the nutritional guidelines and the health risks of not exercising. But there is more.

I would like to talk about some of the other benefits of the sports experience and being physically active.

I started swimming when I was 7 years old. Did I start swimming to be the best in the world, to break records, and to represent my country in the Olympics? Hardly. When I started swimming the team was my peer group. I had a great time. We went to lots of competitions together where the emphasis was on being part of a team and having a lot of fun, just participating, and not on breaking records or being No. 1.

When I was 10 years old, and just about to ease up into another age group, I was very close to breaking the State record in the 100-yard butterfly. My mother said to my coach "I am sure if you just push Nancy a little bit, she will get the record, and that would just be great."

And he said:

> Mrs. Hogshead, it really doesn't matter right now. She is only 10 years old. She will get the records, and she will get all the accomplishments later on. Just let her have fun right now, and let her enjoy, and she will stay in the sport.

That is probably the main thing I attribute to the fact that I stayed in the sport until I was 22 years old, whereas most of the people who held State records at that time were not around even until they were 15 years old.

Consequently, I was not a very good swimmer when I was younger—but I remained in the sport, and I did have a lot of fun, and I gained a lot of experiences by participating.

This emphasis on participation and enjoyment is what kept me in the sport.

At this point, I and most other athletes must give a lot of credit to our parents. My mother used to say, "I don't care what you do,

but you have to do something physically active. I do not care what sport you choose, but you have to be involved in something."

She was not always thrilled about our choices. I was forbidden from doing double backflips on the trampoline, and my brother still suffers a lot from football injuries. But whatever we did, she always encouraged us.

Representing my country in the Olympics, and standing there on the victory stand to receive my Olympic Gold Medal, was the thrill of a lifetime. But that medal is not the most important thing that I got out of my swimming career. The most valuable thing I got from the Olympics was the lessons I learned which will stay with me for a lifetime. I learned how to win, how to lose, how to postpone short-term gratification for long-term goals. I learned how to function as part of a team—whatever is best for Nancy Hogshead is not always what is best for the team. I learned how to set goals and how to overcome setbacks and then go on to achieve those goals. Most of all, I learned how to achieve my goals.

While very few individuals can go to the Olympics or can excel to a very high degree, everyone I participated with in swimming learned the same lessons that I learned through my swimming career.

Young children can learn these lessons so easily in the sporting experience. Outside these experiences, values are not learned as easily. Encouraging American youngsters not only makes healthier, happier kids, it makes better citizens.

When we think about encouraging youth to participate in physical activities, we must also think about trying to overcome the barriers for women to becoming physically fit. In many instances, there are still barriers prohibiting women from competing. In other instances, it is simply that social customs do not encourage women to participate in sports. By not encouraging women, or by denying them the sports experiences, not only are they not as healthy as they should be, but they are denied the lessons that I spoke of earlier.

This summer I was an intern, as you stated in your introduction, at the Women's Sports Foundation, and Monday, September 23, was their annual awards dinner in New York City, where they honor the top amateur and professional athletes.

We honor these athletes to provide role models for the younger athletes, so that a female basketball player does not have to look at Larry Bird, necessarily; she can look at Ann Myers.

And then, the Women's Sports Foundation gives media awards and corporate awards to recognize those that sponsor a positive portrayal of women athletes in the media and those corporations that help create opportunities or support events for women in sports.

There is a myth in our society that one exercises to look good—and, of course, that certainly is a great benefit. But it promotes the myth that if you are thin, then you do not need to work out, or that the only reason to work out is to be thin. Greater emphasis should be placed on the feelings that exercise generates, on getting in touch with your body and developing a sense of body pride instead of shame, on stress management, and being healthy. Thank

you for asking me to appear before this subcommittee. I will be happy to answer any questions you may have.

Senator HAWKINS. Nancy, I know that you have exercise-induced asthma.

Ms. HOGSHEAD. Right.

Senator HAWKINS. Could you tell us about that?

Ms. HOGSHEAD. Yes; I have exercise-induced asthma. And very frequently, if you have something that is wrong with you—my mother has a heart murmur, for example—instead of really looking into it and seeing what can be done, in order to participate in sports, the child is encouraged to lead a sedentary life. The parents are so afraid for the child that they don't seek proper medical attention. So the asthmatic or the person who is ill develops an invalid lifestyle and they do not go out and be active as fully as they can.

I did not find out that I had exercise-induced asthma until I was at the Olympic games. My father is a physician, and my brother has regular asthma. I have never had an asthma attack while just sitting here. I only suffer from acute bronchospasms when I exercise. It can be a very scary thing. I kind of always knew something was wrong, but was afraid to actually find out. In 1972 a friend of mine, Rick DeMont was disqualified for using an athsma medication and got his gold medal taken from him. So I thought even if I did suffer from athsma, I wouldn't be able to do anything about it.

In my last race, I had the opportunity to win more medals than any other swimmer in history, and I missed it by seven one-hundredths of a second, because I suffered an exercise-induced asthma attack with 25 meters to go. I could not breathe air in or out at all. It was this last race which led me to a physician who put me on a treadmill to find out exactly what was wrong.

There are medications available, such as Ventolin, which do not stimulate the heart. I could have used Ventolin at the Olympics because it is accepted by the International Olympic Committee for prevention use. And I just think, if I did not know that I had exercise-induced asthma, there are a lot of kids out there who do not know that there is such a thing as exercise-induced asthma and need to be alerted. They need to know that with proper medication they can still be very active.

Senator HAWKINS. I think it is very important that the young people who watch you so closely understand that you can be fit, but still have some health problems. We discovered something new about you. But you are already such a winner that one more medal would not have made that much difference, at least in this Senator's mind. You are a role model, and, as you and I have discussed several times, this is one of the more important subjects as we approach fitness, because we are telling children to turn off of drugs. We tell them "Don't" so many times; it seems to me that we must say "Do" this, and it will provide a reward for the rest of your life. It will result in not only healthier, happier bodies, but also better minds, as the doctors have testified; the grades go up. Also, the health promotion that we are trying to teach young people will save billions of tax dollars as they approach a senior status.

Ms. HOGSHEAD. Yes. I think if we could get the athletes involved in what we are trying to do and let the athletes know that we have

a problem here. OK, "Sure, you are a great athlete, and you are striving to be number one, but you know, you are a role model; accept that role. How can you go and help other children become more active in sports?"

At the Women's Sports Foundation right now, they openly discuss the issues concerning female athletes. These athletes are in front of cameras and reporters frequently and can pass on concerns or messages to the public. And I am sure that, perhaps with the President's Council on Physical Fitness in Sports, that they could similarly get the athletes involved in trying to have some of these programs work.

One of the themes at the dinner was the importance of the parental role. We discussed the fact that every single athlete attending the dinner has had very supportive parents. Our parents become role models for the parents of young children today. By re-educating parents about the problems and about how they can best teach their children about sports, these children in turn will grow up not only to be healthier and more productive citizens, they will in turn socialize their children to be active and go out and enjoy the benefits of the sporting experience.

So I think the exposure athletes receive is a resource that we need to tap.

Senator HAWKINS. But women have a problem in that they do not engage in many team sports. Football, for instance, is a sport we are not even built for.

Ms. HOGSHEAD. I do not know if anybody is.

Senator HAWKINS. But it seems to me that the team spirit that you talk about, developed through sports and working together, is limited to the number of participants that can be in any particular program. Tennis players, for instance, or golf. We have more women now who are playing golf than ever before. But in your mind, are there women's sports and men's sports?

Ms. HOGSHEAD. Well, it would be nice if there weren't. It would be nice if, whatever your talent was, that you could go and do that sport and be recognized for what you do very well.

One of the greatest events at the foundation dinner was when Libby Riddles won the award for the Professional Athlete of the Year. She won the Iditarod, which is a snow sled race with huskies covering over 1,400 miles through Alaska. Not only is she the first woman to ultra-macho win this race but she is the first woman to ever place. Also, she is the only winner to also get the award for being the kindest to her dogs.

It was a tremendous accomplishment for her to have the opportunity to participate. She is a real role model, and a role-breaker. Women are not in that field, and it is one of the things that women and men can compete in on an equal basis. I do not see that some sports are more made for women, and some sports are more made for men—no. There used to be a women's professional football league, which financially, it was not supporting itself. But there was the interest there, women wanted to play football. Just because you and I are not interested in certain sports, we cannot assume that all women are not interested.

Senator HAWKINS. True. Not everyone can be on a team, but the point here today is to say that you are part of the American team

in being physically fit. These little tots who right now are so preoccupied with "Pac-Man," et cetera, are not getting the message that they have to develop their bodies with their minds, to grow up to be like you.

Ms. HOGSHEAD. I think many of our youth hold their bodies up to the unrealistic ideals presented in the media. They get the message that its not cool to sweat or have flab. They become ashamed of their imperfect bodies so they do not use them, which just leads to an ever more secretary life, a more imperfect body. The cycle is self-reinforcing.

As I mentioned before, we need to get the athletes involved in stressing the importance of participation for youth rather than being the world's best. For example, an interviewer will frequently ask me, "Nancy, what message do you have for all those youngsters who want to be just like you?" And I typically respond, "Just have fun. Enjoy what you're doing. Learn good basics with strokes, starts, and turns. And remember the world doesn't revolve around your performance at the end of the season." The emphasis on fun will keep them participating through their adolescent years. This program would be very inexpensive. The only cost would be in giving athletes information to use while being interviewed.

I still wouldn't want everyone to chose swimming necessarily. Currently, I believe there are more opportunities than participants. At least I know of many swim clubs trying to increase their enrollment. Everyone has different skills and different talents and different things in which they excel. I am very strong and have an excellent body water sense.

I could never play basketball. I am very tall, but I do not have a good eye-hand coordination for basketball. I could never be a gymnast or a dancer due to other body-type liabilities. Fortunately, swimming was available to me, and I could use the skills that I have to excel.

Now, conversely, what if a woman is very strong, the sport she can excel and enjoys is, say, weightlifting. At this point, it is not a socially acceptable way for a woman to express her athletic talent. It is much more acceptable to be a gymnast, dancer, or a cheerleader, or something like this. Of course we would never want to place barriers before those who chose these sports, but we need to get more of an open mind and realize that everybody has different talents, and create more opportunities for woman in different areas, so that you are not limited, by virtue of being a woman, on what kinds of sporting experience you can enjoy.

Senator HAWKINS. Well, we appreciate your impact on American sports and the Olympics. You are really refreshing.

We thank the witnesses that have participated in this hearing today and in the very vital message we are giving to American children and American parents. As usual, the responsibility falls heavily upon the parents, but probably there is no stronger force in the world today than parents united for the proper development of their children. I believe that your testimony has developed a sensitivity in lawmakers as to what is acceptable, what is doable, and what our responsibility is, as we educate a younger generation to take over this country.

[Additional information supplied for the record follows:]

THE PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS
WASHINGTON, D.C. 20001

SENATE SUBCOMMITTEE ON CHILDREN, FAMILY,
DRUGS, AND ALCOHOLISM

"Child Fitness and Health"

Testimony From the
President's Council on Physical Fitness and Sports
George Allen, Chairman

September 24, 1985

Regular appropriate exercise is a significant factor in developing and maintaining the components of physical fitness. Muscular strength and endurance, cardio-respiratory endurance, flexibility and lean body mass results from regular bouts of exercise. Exercise also plays a major role in maintaining proper body weight and the development of motor skills and positive self image. Cardio-respiratory endurance is developed by continual rhymical activity performed at submaximal levels. Continuous exercise sessions of at least twenty minutes a day provide the minimum amount of time necessary for cardio-respiratory improvement to occur.

Skeletal-muscular strength is developed by systematically overloading those systems. Muscles that are taxed more than 50% or more of their capacity will grow in size and strength. Resistance exercisesscan increase the strength and size of skeletal bones and increase lean body mass. Exercise increases the bodys metabolic rate and this often persists after exercise. For example, the metabolic rate may remain elevated for 6 - 24 hours after moderate exercise that lasts only twenty minutes. Extreme food restrictions causes loss of both body fat and lean body mass (muscle). Conversely exercise promotes fat loss and increases body mass. To reduce body fat two activities must occur, increase the expenditure of caloric expenditures through exercise, and modify caloric intake. The increase in basal metabolic rate resulting from exercise, provides additional benefits of caloric expenditure beyond the actual period of exercise. It is a sometimes forgotten benefit of exercise to weight control.

Personal gains in physical fitness are accompanied by increases in self image, confidence and motor skills. The child that is in good physical condition has more energy and tends to participate in physical activities more often than the unfit or deconditioned child who tends to draw back from activities that call for physical skills and abilities. Some inactive children exhibit some of the health risk factors of adults. Heart disease begins in childhood - 60% of children 5-8 years of age show one or more of the following heart disease risk factors: elevated blood pressure, high cholesterol, and physical inactivity.

A recent study by the Department of Health and Human Services reports that 80% of our youths physical activity is performed outside of school physical education classes and research shows that children at routine play do not exercise vigorously enough to improve their fitness.

It is clear that regular appropriate exercise can increase physical fitness and cause a decrease in body weight without alterations in diet. Therefore, there should be serious concern about the following:

In 1984 the PCPFS conducted hearings on Youth Fitness in six major US cities. The testimonies presented at these hearings were shocking and pointed out the seriousness of youth fitness in the U.S. today. The following is a sample of the results which have been reported throughout the country by Council Chairman, George Allen:

1. Fitness levels of children are inadequate, but the real problem is that there is a significant trend downward in performance from grade 10 on.

2. Elementary schools teach PE on the average of 20 minutes one day a week.

3. Thirty percent of 6 - 12th graders failed physical fitness tests in Houston in 1983!

4. In California, 3/4th of all public schools studies have terminated or reassigned physical education teachers since 1977.
5. One out of six boys age 10 cannot do one pullup.
6. Two-thirds of our nations youth in grades 5 - 12 do not have daily PE.
7. In 1978, San Diego had after-school recreation leaders at 97 elementary schools; today, none!
8. Today, less than half of the nations school districts have programs for the physically underdeveloped children.
9. Sixty-one percent of the women in the Air Force Academy Class of 1987 could not do one pullup and these are the best of our high school graduates.
10. In one month, 13,000 of 48,000 army volunteers were rejected for physical and mental reasons. Many of these were orthopedic problems, hypertension and cardio-vascular disease.

The Council has designated "Youth Fitness" as its first priority. The Council has developed cooperative programs with State Departments of Education to increase the level of physical fitness of youth through its Demonstration Center School Project, State Physical Fitness Champions, Regional Clinics on Physical Fitness and Sports leadership training programs for teachers and the Presidential Physical Fitness Awards program.

SUMMARY

Regular appropriate exercise programs will increase the physical fitness of children through increases of muscular strength and endurance. Regular exercise assists in reduction of fat deposits of overweight individuals through metabolic processes that increases caloric expenditure. Although the U.S. has superior physical sports and fitness programs for some children, many are deprived of the opportunity to receive instruction through required school physical education requirements. Health problems such as high blood pressure and heart disease have been found to exist in elementary school-age children. It is incumbent upon the educational leaders in our country to develop adequate requirements for health and physical education programs in elementary and secondary schools. Many experts agree that adult health problems result from unhealthy lifestyles that include cigarette smoking, overeating, abuse of alcohol and drugs and lack of physical inactivity.

Submitted by:

Ash Hayes, Ed.D.
Executive Director

Statement of

John C. McCabe
Chairman & Chief Executive Officer
Blue Cross and Blue Shield of Michigan

For the

Senate Subcommittee on Children,
Family, Drugs and Alcoholism

The Honorable Paula Hawkins
Chairwoman

October 15, 1985

Blue Cross and Blue Shield of Michigan appreciates this opportunity to submit for your record a description of our model physical education program--Fitness for Youth--which has been developed by the University of Michigan.

We're very pleased that this subcommittee has shown its concern in the physical fitness of America's young people and we hope that the record of these hearings will be helpful to researchers and teachers who are now working to improve the physical status of the young.

As one of the largest of the combined Plans in the Blue Cross and Blue Shield Association, we feel a particular responsibility to not only provide cost effective health care coverage for our 4.6 million Michigan customers but also to be a leader in promoting fitness, nutrition and healthy lifestyles.

Fitness for Youth was developed in 1982 by Guy Reiff, Ph.D., of the Fitness Research Center at the University of Michigan, Robert Dixon, Ph.D., and Joseph Arends, M.D. Dr. Reiff is a special adviser to the President's Council on Physical Fitness and Sports and has conducted five national surveys of youth fitness.

The goal of Fitness for Youth is to change or modify the exercise and eating habits of children. Testimony of other witnesses heard by the subcommittee cite why--America's children are at high risk of cardiovascular disease.

Seventy-five percent of all deaths in this country are due to degenerative diseases such as heart disease, stroke and cancer. Cardiovascular disease accounts for approximately half of

all deaths.

Most serious illnesses, such as heart disease and cancer, are related to factors such as obesity, high blood cholesterol levels, smoking, lack of exercise, poor dietary habits and severe emotional stress. Put another way, most disease results from lifestyle and lifestyles are amenable to change. A former Secretary of Health, Education and Welfare stated it quite succinctly: "The individual can do more for his own health and well-being than any doctor, any hospital, any drug, or any exotic medical device." (Califano, 1979).

However, we as a nation have not made a major commitment to prevention. Only five cents of each health dollar is spent for prevention. We seem to spend all of our time on alcohol or drug rehabilitation with programs that are, for the most part, begun too late to be effective.

Data from national studies of youth fitness have consistently reported that our youth are underexercised and overfat.

o More than 40 percent of young children have been identified with one or more risk factors associated with heart disease. Where intervention programs of exercise and nutrition have been implemented, these factors have been drastically reduced.

o Physical performance levels of school children are alarmingly low, and getting worse.

o We are the fattest nation in the world. Obesity is challenging malnutrition as a major American health problem, and fat children become fat adults.

o At age 30, the number one cause of death for males is heart attack; it's the number two case for females. (The number one case of death for females is lung cancer from smoking.)

o Heart attack is a childhood disease; the signs can be identified in elementary school children.

Our consultant, Dr. Reiff, has confirmed the previous data during the course of school visits and meetings all over the United States while conducting five national studies of youth fitness. Observations are based upon probability samples of schools since 1965.

Major objectives of Fitness for Youth are to: (1) design methods of motivating children to develop reasonable physical activity and nutritional lifestyles throughout life, (2) transfer the assumption of responsibility to the student for development of a healthy lifestyle, and (3) create an exportable model for achieving these goals which can be implemented by both private and public school systems.

A typical Fitness for Youth program requires approximately two years to fully implement. To change the behavior patterns of children requires a commitment to work with teachers, making them self-sufficient in knowledge and providing teaching systems to enable them to deliver the program on their own.

Students participating are tested twice a year and receive a computer generated "Fitness Profile". Both biomedical and physical performance variables are measured.

Biomedical measurements include blood pressure, plasma cholesterol, skinfold fat (triceps and sub-scapula),

height/weight, and a prediction of percent body fat.

Physical performance tests measure cardiovascular endurance (mile run), trunk flexibility, upper arm and shoulder girdle strength (pullups/flexed arm hang), abdominal strength (modified sit-ups), explosive ability and leg strength (standing long jump), and quickness/speed (50 yd. dash and shuttle run).

Dramatic results have been obtained in all districts. After one year in the program, those tested scored above national norms. The greatest improvement was in cardiovascular endurance, abdominal strength, flexibility and upper arm strength. Intervention programs of exercise and diet effectively reduced elevated blood pressure readings in those cases where students displayed high readings despite frequent rechecks. Plasma cholesterol values were also reduced significantly in those students who had elevated values at the first test.

But children do not operate in a vacuum, learning only at school. Parents prepare most of their meals and are role models, conveying both good and bad eating and exercise habits. Fitness for Youth works within the community as well as in school. The community's involvement is encouraged in PTA meetings and media publicity. All parents are invited to a series of meetings to discuss their children's fitness profiles. Extension classes on "Lifestyle Habits" are offered through the community education program.

It is significant to note that in the majority of the schools in which Fitness for Youth has operated, physical education classes ranged from two half hours a week to five half

hours a week. Naturally, greater improvements were achieved in the five classes per week programs.

BCBSM's involvement in Fitness for Youth started modestly in 1983 when we agreed to underwrite part of the program's cost in grades K through 6 in the Stockbridge, Michigan, school district. The Stockbridge students were tested after the first year and showed dramatic improvements in all eight categories when compared to national norms. The Stockbridge school system recognized the effectiveness of the program as well and expanded it to the 7th grade in 1984 and to the 8th grade this year. BCBSM's direct financial involvement in the Stockbridge pilot program lasted for two years; this year the Stockbridge system is funding Fitness for Youth entirely from its own budget and intends to eventually include senior high school students in it.

In 1984, Fitness for Youth programs being operated by Dr. Reiff's staff in three districts near metropolitan Detroit (Blissfield, Waterford and Romeo) were incorporated into the BCBSM-sponsored program.

In September of 1985, BCBSM agreed to underwrite a two year, $262,000 expansion of Fitness for Youth which will involve at least five new school districts. It is currently benefitting some 28,000 students. The new districts are: Dexter (Washtenaw county), Warren-Fitzgerald (Macomb county), Lake Odessa (Ionia county), Bronson (Branch county) and West Bloomfield (Oakland county).

BCBSM intends to evaluate the expanded program at the end of the 85-86 school year and to consider making it available nationwide through the auspices of Blue Cross and Blue Shield plans in other states. Already, Fitness for Youth has received

inquiries from school systems in Oklahoma, Minnesota, California, Colorado and the country of Mexico.

There's an economic equation to this program that is difficult to express but one which we know exists. In Michigan, heart and cerebrovascular diseases are the first and third most frequent causes of death. Through projects such as Fitness for Youth, BCBSM hopes to encourage healthy lifestyles and promote the kind of exercise and nutrition habits which can fight the devastating health consequences of inactivity, obesity and junk food diets. We're certain that individuals who benefit from the Fitness for Youth program will lead healthier and more productive lives. Healthier individuals have less frequent contact with the medical profession, less exposure to expensive medical procedures and fewer hospitalizations. Unfortunately, we can't quantify such "avoidance" savings but it could ultimately mean tens of millions saved by employers who provide medical insurance coverage for their workers. We do know, from studies such as the 27-year evaluation of DuPont employees, that lifestyle changes have paid off in fewer heart attacks.

Fitness for Youth has generated national interest, partially as a result of exposure on The Today Show (NBC), the Cable News Network and Associated Press coverage. Blue Cross and Blue Shield of Michigan has been a significant and important influence in expanding the program, through its funding base as well as lending the prestige and other resources of the organization.

We believe that our involvement is an example of how the corporate sector can combine with a prestigious educational and

research institution such as the University of Michigan and respond to the challenge of President Reagan, issued two years ago, to ensure that our children get the best education they deserve through a partnership in education.

Some final thoughts....

The United States has more physical educators, more health educators, more gymnasia, running tracks, swimming pools and health clubs than any country in the world. We have the best informed and able medical profession and lead the world in health care and medical research. Yet we also lead the world in heart disease.

The need for prevention programs is evident. Our schools are the most likely place to start; they have the expertise in health and nutrition as well as physical education. However, this expertise is simply not being directed into accomplishing clearly defined preventive goals. It is reasonably clear that programs of physical education and health education, which should and could establish fitness habits, have not done so. Many reasons have been given including: (1) financial cutbacks, (2) layoffs and staff shortages, (3) use of physical education classes as "dumping grounds" for students not otherwise occupied, and (4) inadequately trained teachers. One can find some excellent physical education programs but most systems seem to have abandoned any educational mission and the physical education programs have become nothing more than supervised recess periods.

Physical education programs can be improved, teaching skills upgraded and new delivery systems made available. It is time to make physical education programs accountable just as are any other important and vital parts of the school curricula.

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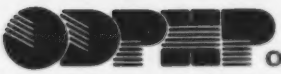

Office of Disease Prevention and Health Promotion

SUMMARY OF FINDINGS FROM NATIONAL CHILDREN AND YOUTH FITNESS STUDY

OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION
U.S. PUBLIC HEALTH SERVICE
DEPARTMENT OF HEALTH AND HUMAN SERVICES

U.S. Department of Health and Human Services Public Health Service Washington, D.C. 20201

HHS NEWS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

FOR IMMEDIATE RELEASE
Tuesday, October 16, 1984

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American children and adolescents are not developing the exercise and fitness skills that could help maintain their good health as adults, and as many as half may not be getting enough exercise to develop healthy cardiorespiratory systems, according to a two-year nationwide study released today by HHS Secretary Margaret M. Heckler.

The study, funded by the PHS Office of Disease Prevention and Health Promotion, surveyed 8,800 students across the nation in grades five through 12. The survey examined fitness and exercise habits. In addition, rigorous physical tests were administered which, for the first time in such a study, were designed to show overall health and fitness rather than athletic ability or agility.

"This study should serve as a warning. It shows that America's school children are not achieving the lifetime fitness skills required to promote good health," Secretary Heckler said. "But it can also serve us as a blueprint for achieving the exercise and fitness goals we seek for today's children and the generations to come."

The findings were included in the National Children and Youth Fitness Study, the first nationwide assessment of the physical fitness of young Americans in nearly a decade, and

the most rigorous study of fitness among youth ever conducted in the United States, according to the Public Health Service.

Mrs. Heckler said PHS "is launching a vigorous campaign to share these findings with national, state and local groups and to work with them toward improved fitness and health for our children."

Students surveyed were 10 to 17 years old. Among the findings:

- In elementary school, only half the children take physical education classes as often as twice a week; and at the secondary level, programs tend to focus on group and team sports rather than on individual and lifetime skills for promoting good health.
- Only 36.3 percent of students in grades five through 12 take physical education classes daily, compared with the 1990 goal of 60 percent. PHS has set wide-ranging goals in health promotion and disease prevention to be achieved by 199_.
- The study also found that "American young people have become fatter since the 1960s," with median skinfold sums two to three millimeters thicker than in a 1960s sample studied by PHS. However, PHS scientists cautioned that further study was needed to determine the extent to which this average higher body fat represents a health problem.

- As measured by exercise and fitness norms that were developed as part of the study, only about half the students were achieving the minimum appropriate physical activity to maintain effectively functioning cardiorespiratory systems. PHS pointed especially to fitness scores in the mile walk-run, as well as the higher body fat findings.

Secretary Heckler said a unique feature of the study was that it measures children's activities for both school and other community settings. It found that more than 80 percent of the physical activity of students was performed outside school physical education classes.

"This finding indicates two things -- that schools may need to offer better fitness programs, where guidance in lifetime exercise and fitness skills can be taught -- and that community programs can be coordinated as an integral part of overall physical development," Mrs. Heckler said.

She also said HHS will work with groups like the President's Council on Physical Fitness and Sports, the American Alliance for Health, Physical Education, Recreation and Dance, as well as school administrators to develop recommendations for school-based physical activities "that promote lifelong fitness skills for our young people."

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SUMMARY OF FINDINGS FROM NATIONAL CHILDREN AND YOUTH FITNESS STUDY

The physical fitness and activity patterns of America's school-age children and youth are matters of national concern: media pundits warn that our younger people may be "turning into flab" and that the fitness revolution has failed to "trickle down." Against this background, the National Children and Youth Fitness Study (NCYFS) was launched to determine how fit and how active 5th- through 12th-grade students actually are. Specifically, the study set out to describe the current fitness status of American children and youth, to describe patterns of participation in physical activity, and to evaluate the relationships among physical activity patterns and measured fitness. The NCYFS was the first nationwide assessment of the physical fitness of American young people in nearly a decade and the most rigorous study of fitness among our youth ever conducted in the United States. In this summary, we describe the background of the study, methods of collecting data, and major study findings.

Impetus Behind The Study

The landmark government report, Promoting Health/Preventing Disease: Objectives for the Nation, was the impetus behind the NCYFS. The report, released in 1980, set 226 specific health objectives to be achieved by the year 1990. Of eleven objectives relating to exercise and fitness, five focused on children and youth. In relation to 10–17 year-olds, there were three behavioral objectives to achieve by 1990: 60 percent will attend physical education classes daily, 70 percent will periodically have their fitness tested, and 90 percent will participate in physical activities that are appropriate for the maintenance of an effective cardiorespiratory system. The two other youth-related 1990 objectives call for [illegible] to monitor patterns of participation in physical activity and to evaluate the short- and long-term health benefits of exercise.

Project History

The Office of Disease Prevention and Health Promotion (ODPHP)—the U.S. Public Health Service agency charged with coordinating and monitoring progress toward the achievement of the 1990 objectives—could not find data adequate to support the five objectives and began to lay the groundwork for the NCYFS. Panels of experts were convened by ODPHP to help design a battery of fitness tests and a survey of physical activities. The NCYFS began in the fall of 1982 and the panel recommendations were formally pilot tested in three states in May 1983. Data were collected from a national random sample of 10,275 students from 140 public and private schools in 19 States between February and May 1984. The 8,800 boys and girls who participated in the fitness testing and survey represented an 85.6 percent participation rate, which is high for a survey of this type.

Study Questions

The NCYFS posed three general questions about the fitness and physical activity patterns of American children and youth:

- How fit are American boys and girls in grades 5 through 12?
- What are the physical activity patterns of children and youth in these grades?
- How do differences in physical activity patterns affect measured fitness?

We asked a variety of specific questions in relation to each of these general ones. For example, on the basic question of fitness, we asked: What level of performance must a student of a given grade and sex achieve on a series of fitness tests to be considered in optimal condition? To be considered in acceptable or average shape? As children grow older, does their fitness continue to improve, level off, or decline? How closely do students meet currently accepted standards of fitness? In relation to the basic question about physical activity patterns, we asked: What percentage of students are enrolled in physical education? What percentage participate in physical activity through one or more community organizations? How much time do students spend in physical activity? How much variety is there among the activities in which they engage? What specific activities occupy most of their time? What portion of their time is spent in lifetime activities, (i.e., those that are likely to carry over into adulthood)? What percentage of students participate in appropriate physical activity (i.e., activities of a frequency, duration, and intensity sufficient to maintain an effectively functioning cardiorespiratory system)? What portion of this appropriate activity comes through lifetime physical activities? Finally, on the causes of fitness, we asked: What aspects of physical activity relate to a high level of performance on each of several fitness tests? What are the overall roles of physical education programs, community organizations, and participation in appropriate physical activity in determining fitness? These questions were answered by the NCYFS.

Data Collection Procedures

Each of the 8,800 participating students filled out a survey on the types, frequency, duration, and seasonality of exercise, sports, and active games provided through school physical education class, other school programs, community organizations, and home or neighborhood. Next, each student completed a battery of five measures drawn primarily from the AAHPERD Health Related Physical Fitness Test (HRPFT). Cardiorespiratory endurance was measured through the one-mile walk/run; lower back/hamstring flexibility through the sit-and-reach test. Upper body strength/endurance was tested by chin-ups, and abdominal strength/endurance by bent-knee sit-ups. Finally, body composition (degree of fatness) was assessed by measuring triceps and subscapular skinfolds.

Participating teachers were trained in data collection procedures and testing techniques. To minimize the burden on teachers, field staff worked closely with school personnel until all data were collected. The skinfold measurements and the sit-and-reach test were conducted by the field staff. Mass-testing procedures were used to avoid disrupting school programs. Throughout the project, continuing efforts were made to ensure data quality.

The New Fitness Standards

Fitness norms were last developed on a national sample of school children in 1975. These norms reflect children's performance on the AAHPERD Youth Fitness Test, which is primarily a test of motor fitness or athletic ability. The more recently developed AAHPERD HRPFT, released in 1980, measures aspects of fitness that are related to and predictive of health. The HRPFT previously had not been used with a nationally representative sample to develop norms. The NCYFS produced norms by sex/age and sex/grade for each of the fitness measures listed above. The norms are considered highly accurate at the decile and quartile levels (i.e., every 10th and 25th percentile). It is expected that the new norms will be used not only to assess current fitness levels, but also to prescribe exercise and activity programs, to monitor changes in fitness over time, and to test the success of various interventions.

EXHIBIT 1

AVERAGE SCORES FOR BOYS BY AGE ON THE NCYFS FITNESS TESTS

Test	Measures	Age								
		10	11	12	13	14	15	16	17	18
Sum of Triceps and Subscapular Skinfolds (Millimeters)	Body Fatness	20.9	21.20	21.60	20.10	20.10	20.10	19.40	20.10	20.2
Sit-and-Reach (Inches)	Flexibility	13.10	13.10	12.70	12.90	13.30	14.10	14.80	15.10	15.10
Bent-Knee Sit-Ups (Number in 60 Seconds)	Abdominal Strength	34.40	35.30	37.90	39.60	41.00	42.00	43.50	43.50	42.70
Chin-Ups (Number Completed)	Upper Body Strength	2.70	2.90	3.40	4.60	5.70	7.20	8.60	9.00	9.70
Mile Walk/Run (Minutes and Seconds)	Cardiorespiratory Endurance	10:20	9:50	9:24	8:41	8:40	8:00	7:44	8:20	8:10

EXHIBIT 3

AVERAGE SCORES FOR GIRLS BY AGE ON THE HCYFS FITNESS TESTS

Test	Measures	Age								
		10	11	12	13	14	15	16	17	18
Sum of Triceps and Subscapular Skinfolds (Millimeters)	Body Fatness	32.60	34.80	33.30	30.80	27.90	30.00	28.70	30.20	29.90
Sit-and-Reach (Inches)	Flexibility	14.40	14.80	15.50	16.10	16.40	17.00	17.50	17.20	17.10
Bent-Knee Sit-Ups (Number in 60 Seconds)	Abdominal Strength	31.40	31.60	33.70	33.60	34.80	34.60	35.10	35.10	35.40
Chin-Ups (Number Completed)	Upper Body Strength	.90	.80	.80	.60	.80	.60	.90	.70	.60
Mile Walk/Run (Minutes and Seconds)	Cardiorespiratory Endurance	11:38	11.32	11:31	11:05	10:42	11:14	11:03	11:00	11:20

Each of the five fitness tests measures one or more specific aspects of an individual's current health and potential resistance to disease. The sit-and-reach test and the sit-ups primarily indicate the likelihood of an individual developing a lower back problem due to inadequate flexibility and/or poor abdominal strength. The mile walk/run measures the generalized capacity of the cardiovascular system, which may increase an individual's resistance to heart disease. An individual's degree of body fatness, as shown by skinfold thickness, helps to predict vulnerability to a wide range of degenerative diseases, including hypertension, heart disease, diabetes, psychological disorders, and impaired tolerance for heat. The capacity to perform chin-ups reflects an aspect of physical work required in many tasks as well as the ability to lift one's body weight in a life-threatening situation.

The Effects Of Maturation On Test Performance

It is generally believed that boys' performance on fitness tests tends to peak shortly after puberty and then reaches a plateau for the remaining school years, whereas girls' performance reportedly peaks at roughly the onset of puberty and then rapidly declines.

However, the NCYFS shows that boys can do more sit-ups and chin-ups, can stretch farther, and have less body fat as they reach the older teens. Only on the one-mile walk/run does it appear that performance reaches a plateau or declines slightly. For girls, abdominal strength and flexibility appear to improve with age. Although girls' body fatness increases with age, this pattern decelerates around age 15. Upper body strength remains consistently low. On the mile walk/run, girls' performance appears to peak at around 14, decline slightly, and level off in the older teens. This overall pattern of continued improvement for both boys and girls runs contrary to the common belief that performance on fitness tests levels off for boys and declines for girls in early adolescence.

Comparison With Previously Published Norms

The NCYFS norms were compared with the norms released by AAHPERD in 1980 as part of the HRPFT Manual. Because the previously published norms for skinfold measurements were developed on a nationally representative sample, we were in a position to ask, "Have American young people become fatter?" However, the published norms for the mile walk/run, sit-ups, and the sit-and-reach test were developed on a convenience sample, i.e., on students who were readily available in schools that had volunteered to assist in norms development. Thus, in comparing the NCYFS norms with the previously published HRPFT norms, our primary interest was to examine the efficacy of basing fitness norms on convenience samples.

The NCYFS shows that American young people have become fatter since the 1960's. For both boys and girls, the NCYFS sample had median skinfold sums that were two to three millimeters thicker than in the 1960's sample studied by the National Center for Health Statistics. Average triceps skinfold thickness was significantly greater in the NCYFS for 13 of 16 age/sex groups. The AAHPERD norms also generally set more stringent standards for the two most difficult tests, the mile walk/run and sit-ups. This suggests that the AAHPERD convenience sample was less representative of American young people than the NCYFS random sample. It appears that convenience samples tend to exclude less fit and less motivated students and, thereby, produce norms that are skewed toward higher performance levels.

Physical Education Programs

It is encouraging that over 80 percent of students in grades 5 through 12 are enrolled in physical education; and that the number of weekly class meetings, average 3.6, seems adequate to achieve the instructional goals of a physical education program. The average class lasts 46.7 minutes, for an average weekly activity time of 141 minutes. Students are exposed to an average of 11.8 different activities over a year's time, with slightly less than half the time spent on lifetime activities. Enrollment in physical education drops off, however, as students grow older. From an enrollment level of 97 percent in grades 5 and 6, enrollment tapers off until it approaches 50 percent in grades 11 and 12. For 12th-grade girls, enrollment is under 50 percent. Among students enrolled in physical education, daily participation is the modal frequency, but only 36.3 percent of students in grades 5 through 12 take physical education daily, in contrast with the goal of 60 percent in the Objectives for the Nation. Several aspects of the physical education environment improve in the older grades: amount of weekly activity time, the portion of time spent on lifetime activities, and the availability of showers and a time and place to change clothes. The variety of different activities to which a student is exposed over a year's time in physical education decreases as students move to the higher

grades. The typical student spends the largest portions of physical education class time on five activities, listed in descending rank order: basketball, calisthenics/exercises, volleyball, baseball/softball, and touch/flag football. Among younger students, there is heavy reliance on relays and informal games, such as dodgeball and kickball.

Exhibit 3

U.S. Participation in School Physical Education Class, Grades 5-12

	Boys	Girls	Boys and Girls
Percent Enrolled in Physical Education	81.7	78.9	80.3
Average Number Days Per Week	3.8	3.8	3.8
Average Activity Time Per Week (in minutes)	140.8	141.2	141.0
Average Class Length (minutes)	47.3	46.0	46.7
Average Number Different Activities in a Year	11.3	12.2	11.8
Average Portion of Curriculum Spent on Lifetime Activities	45.3	50.1	47.8
Average Number Different Lifetime Activities Per Year	5.2	6.3	5.8

One of the key assumptions in Objectives for the Nation related to physical education is that, "...school-based programs will embrace activities which expand beyond competitive sports" (p. 81). The survey found that present school physical education programs are not geared to this goal. Among younger students, the short weekly activity time, lack of time and facilities to change clothes and shower, and heavy reliance on relays and informal games restricts the opportunities for learning. For older students, physical educators continue to rely heavily on competitive sports and other activities that students cannot readily continue throughout adulthood. Inadequate investment is being made in conveying the physical skills needed for active lifestyles.

EXHIBIT 4

TOP 15 SELF-REPORTED PHYSICAL ACTIVITIES FOR BOYS AND GIRLS IN GRADES 5-12 BASED ON THE PORTION OF TOTAL PHYSICAL ACTIVITY TIME IN PHYSICAL EDUCATION CLASS SPENT ON THE ACTIVITIES

Boys	Rank	Girls
Activity		Activity
Basketball	1	Calisthenics/Exercises
Calisthenics/Exercises	2	Volleyball
Baseball/Softball Volleyball	3	Basketball
	4	Jogging (Distance Running)
Jogging (Distance Running)	5	Baseball/Softball
Football (Touch or Flag)	6	Soccer
Soccer	7	Kickball
Dodgeball/Bombardment Weightlifting or Training	8	Aerobic Dancing Relays
Running Sprints	10	Football (Touch or Flag)
Kickball	11	Running Sprints
Relays	12	Gymnastics: Tumbling Jumping or Skipping Rope
Field Hockey/Street Hockey	13	
Swimming	14	Dodgeball/Bombardment
Jumping or Skipping Rope	15	Gymnastics: Free Exercise

Other Sources Of Physical Activity

The typical student reports spending over 80 percent of his or her physical activity time outside physical education class. Activity time peaks in the summer, falls off rapidly in the fall and winter months, and resumes at a more typical level in the spring. Year round, the average student spends 760 minutes (or slightly under 13 hours) per week in sports, active games, and exercises. The activity patterns of girls and younger students are disproportionately affected by changes in the weather.

Exhibit 5

U.S. Participation in Physical Activities Outside of School Physical Education Class, Grades 5-12

	Boys	Girls	Boys and Girls
Percent Receiving Physical Activity Through a Community Organization	83.1	80.2	81.8
Average Number of Community Organizations as Sources of Activity	2.1	1.9	2.0
Average Number of Different Activities in a Year	23.0	19.5	21.3
Average Time in Physical Activity Weekly (minutes)	727.0	721.0	780.0
Average Portion of Time Spent on Lifetime Activities	58.7	78.7	63.2
Percent Receiving Appropriate Physical Activity Year Round	60.7	57.1	58.9
Percent Participating in Lifetime Appropriate Physical Activity Year Round	45.1	48.8	46.9
Percent Sweating and Breathing Hard during Exercise Year Round	44.0	38.3	41.0

According to the self-report survey, the typical youth is exposed to (i.e., participates in at least three times) 21.3 different activities over a year's time outside the physical education class (primarily the community). The variation in activities drops as children grow older. The average youth has opportunities to participate in physical activity through two different community organizations, with only 18.2 percent not performing a physical activity through community organizations. Among community organizations, the leading sources of physical activity are churches and other places of worship, parks and recreation programs, local team sports, and private organizations (e.g., health clubs).

EXHIBIT 6

TOP 15 SELF-REPORTED PHYSICAL ACTIVITIES FOR BOYS AND GIRLS IN GRADES 5-12 BASED ON THE PORTION OF TOTAL PHYSICAL ACTIVITY TIME OUTSIDE PHYSICAL EDUCATION CLASS SPENT ON THE ACTIVITIES

Boys	Rank	Girls
Activity		Activity
Bicycling	1	Swimming
Basketball	2	Bicycling
Football (Tackle)	3	Disco or Popular Dance
Baseball/Softball	4	Rollerskating
Swimming	5	Walking Quickly
Weightlifting or Training	6	Baseball/Softball
Fishing	7	Basketball
Football (Touch or Flag) Hunting	8	Calisthenics /Exercises
	9	Jogging (Distance Running)
Jogging (Distance Running)	10	Gymnastics - Free Exercise
Soccer	11	Volleyball
Lacrosse	12	Aerobic Dance
King of the Hill Roller Skating	13	Tennis
	14	Horseback Riding
Disco or Popular Dance Wrestling Karate/Judo/Martial Arts	15	Cheerleading/Pom Pon

A limited number of activities occupy a large portion of a youth's total activity time. The five activities occupying boys' time, in descending rank order, are: bicycling, basketball, football (tackle), baseball/softball, and swimming. The top five activities for girls are swimming, bicycling, disco or popular dance, rollerskating, and walking quickly. The average student spends much more time on lifetime physical activities outside the physical education class (63.2 percent) than within it (47.6 percent). In general, the portion of activity time dedicated to activities that may readily be continued into adulthood increases as youths grow older. The typical girl spends much more time on lifetime physical activities (70.7 percent) than the average boy (55.7 percent).

Receipt Of Appropriate Physical Activity

Regular, vigorous, and prolonged physical activity is generally accepted as essential for an effectively functioning cardiorespiratory system. The term "appropriate physical activity," as typically defined and as adopted by the NCYFS, refers to exercise involving large muscle groups in dynamic movement for periods of 20 minutes or longer, three or more times weekly, at an intensity requiring 60 percent or more of an individual's cardiorespiratory capacity. The NCYFS shows that approximately half of boys and girls in grades 5 through 12 are achieving at least the minimum weekly requirement. By measuring appropriate physical activity three ways, the NCYFS found that, 58.9 percent engage in appropriate physical activity year round, 46.9 percent engage in one or more lifetime activities to achieve year round appropriate physical activity, and 41.0 percent perceive that they regularly exert themselves during exercise (sweating and breathing hard). The segment of the population engaging in appropriate physical activity, by any measure, fluctuates with the seasons, falling off sharply in the fall and winter months and climbing again in spring and summer. This cyclical pattern indicates that our youths may lose many of the health benefits of year-round physical activity and face the task of reconditioning in the spring. An unhealthy precedent may be set for lifelong patterns of inconsistent participation in vigorous physical activity.

What Causes Fitness?

Three aspects of the physical activity patterns of our children and youth have been shown to influence fitness: (1) year-round participation in appropriate physical activity, (2) enrollment in and exposure to a wide variety of activities through physical education class, and (3) variation in activities in a setting other than physical education, coupled with receipt of physical activity through community organizations.

- Year-Round Appropriate Physical Activity--Although students generally report cyclical patterns of physical activity, students performing at optimal levels (at or above the 75th percentile) on fitness tests report significantly greater participation during non-summer months than students performing at average and below average levels. Students performing below average (below the 40th percentile) on fitness tests experience the greatest reduction in physical activity, especially high-intensity cardiorespiratory physical activities, during the non-summer months.

- Physical Education Program--Enrollment in physical education positively affects fitness, but of greater importance is the nature of the program. Students exposed to a wide variety of activities perform better on physical fitness tests than students with more restricted exposure. The weekly activity time in physical education positively affects fitness test performance, up to a point of diminishing returns.

- Physical Activity in Other Settings--The greater the number of physical activities in which students have participated (at least three times) in the past year and the greater the variety in the types of community organizations through which they have participated, the better the performance on physical fitness tests.

Conclusions

The NCYFS has produced a substantial base of knowledge about the physical fitness and activity patterns of our children and youth. Coordinated efforts—involving schools, community organizations, children, and their parents—will be required to accomplish by the end of the decade the Objectives for the Nation related to fitness and exercise among children and youth.

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American Academy of Pediatrics Policy Statement

Children, Adolescents, and Television

Next to the family, television may be the most important source of information for children and a principal factor influencing their development. Children two to 12 years old in the United States watch approximately 25 hours of television per week. On an annual basis, children spend more time in front of their television sets than they spend in school.

Television is a powerful tool that can promote learning, create aspirations, and induce prosocial behavior. When it deals with medical topics, television contains many messages that promote health or prevent illness. However, television advertising and programming can adversely affect learning and behavior of children and adolescents in a number of significant areas:

1. Repeated exposure to televised violence promotes a proclivity to violence and a passive response to its practice.

2. Television viewing increases consumption of high caloric density snacks, and increases the prevalance of obesity.

3. Although the evidence that television may have a deleterious effect on school performance may be confounded by other factors, learning from television is passive rather than active, and detracts from time spent reading or using active learning skills.

4. Television conveys unrealistic messages regarding drugs, alcohol, and tobacco, and indirectly encourages their use.

5. The portrayal of sex roles and sexuality on television is unrealistic and misleading: sexual relationships develop rapidly; the risk of pregnancy is rarely considered; adolescence is portrayed as a constant state of sexual crisis. These characteristics may contribute directly or indirectly to the risk of adolescent pregnancy and clearly alter age-dependent experiential learning with respect to sexuality. Pornography on cable television is a particularly important concern.

6. Television promotes ethnic and racial stereotypes and does little to promote a sympathetic understanding of handicapped people.

7. Television conveys an unrealistic view of problem solving or conflict resolution.

To address these concerns, we recommend that the AAP:

1. Educate pediatricians with respect to the consequences of television viewing. Approaches should include the development of specific materials and curricula for teaching medical students, pediatric house staff, practicing pediatricians, and others who deal directly with the health of children and adolescents.

2. Provide materials and an approach to counseling children, adolescents and their families regarding the effects of television and methods suitable for altering viewing habits. Although an AAP pamphlet already exists for this purpose, additional materials regarding alcohol and sexuality would be useful. Specific recommendations for counseling should be developed.

3. Encourage legislative activity to increase quality programming and reduce advertising directed at children.

4. Establish liaisons with networks, producers, writers, and other professional organizations to improve the quality of programming and advertising and to act as a resource for these groups.

5. Provide an ongoing review of new technologies that enable families to alter or control their children's television viewing habits.

6. Encourage involvement by local and chapter groups to interact with network affiliates, independent television stations, and cable companies to improve local programming and advertising directed at children.

Task Force on Children and Television
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William H. Dietz, Jr., M.D., Ph.D.

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The televised violence to which children are exposed is just one of the ways in which television can adversely affect children's learning and behavior.

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STATE OF FLORIDA SCHOOL PROGRAM FOR OVERWEIGHT CHILDREN

Program Analysis and Results

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Description of Sample

One hundred and thirty nine (139) children were available for the final analysis, i.e., initial and final heights and weights were obtained on these children. The children were from nine schools in seven counties. The counties and schools are listed below:

County	Schools
Polk County	Lime Street Elementary School
Jackson County	Cottondale Elementary School
Alachua County	High Springs Elementary School
	Shell Elementary School
Washington County	Vernon Elementary School
	Kate Smith Elementary School
St. Lucie County	Lawwood Elementary School
Lee County	Tropic Isles Elementary School
Indian River County	Vero Beach Elementary School

As described earlier, the children were assigned to one of two programs: Nutrition Education or Delayed Treatment. Children in the Delayed Treatment program were weighed before and after the period in which the Nutrition Educa-

tion children were receiving treatment. The Delayed Treatment children subsequently received the Nutrition Education program. It was imperative to have this Delayed Treatment condition to serve as a standard against which the Nutrition Education Program could be compared. Results from any treatment program are of little use without information on the anticipated performance of the subjects had they not received treatment.

Information on children completing the program is presented in Table 1. The information is provided for the schools, grades, sexes, and treatment conditions. As Table 1 indicates, Lime Street School collected information on nearly twice as many children as the next most active school, Tropic Isles. Children from the fifth grade comprised the largest group of students, followed by third grade students. More girls (88) completed the program than boys (51), and children assigned to Nutrition Education outnumbered those assigned to Delayed Treatment by 75 to 64.

Description of Analysis

Analyzing results from weight reduction programs is a complex statistical process. One major problem is that the dependent variable, weight loss, cannot be equated across subjects. For example, a 12-pound weight loss for a 75-pound child is much different than a 12-pound loss in a 150-pound child. Second, the analysis must take into account that children of different ages were involved in the program. A weight of 90 pounds is close to "ideal" for a 12-year-old child, but would constitute gross obesity for a 6-year-old child. Third, sex is an important factor; girls are expected to weigh more than boys at age 6, but by age 13, the boys are expected to weigh more. Fourth, developmental weight gain is a very complicated factor. Over the course of a 12-week program, children are expected to grow in both height and weight. The ideal weight for a child changes from the beginning to the end of a program. Any

TABLE ONE
Number of Children Completing the Program

Schools

School	Number
1. Lime Street	39
2. Cottondale	15
3. High Springs	7
4. Ver[illegible] Beach	16
5. She[illegible]	19
6. Vernon	9
7. Kate Smith	11
8. Lavnwood	2
9. Tropic Isles	21

Grade

Grade	Number
Kindergarten	13
First Grade	18
Second Grade	13
Third Grade	21
Fourth Grade	19
Fifth Grade	39
Sixth Grade	13

Sex

	Number
Boys	51
Girls	88

Treatment Condition

	Number
Nutrition Education	75
Delayed Treatment	64

change in body weight, therefore, must account for anticipated developmental weight gain, a factor which itself varies with age, sex, and body size.

A computer program was designed to account for all the factors mentioned above. Norms for developmental changes in height and weight were obtained (Table 2). These tables present the 5th, 50th, and 95th percentiles for height and weight for boys and girls from ages 4 to 18. More importantly, these tables provide expected gains in height and weight for each sex at each age. The computer program was designed to 1) consider the child's sex; 2) consider the child's age; 3) account for the length of time between the initial weighing and the final weighing; 4) determine actual height gain as a percentage of expected height gain; 5) use the percentage from height to calculate expected weight gain for the number of weeks between initial and final weighings. This yields the number of pounds a child was expected to gain developmentally given his or her age, duration of the program, and change in height. Specific values for these adjustments in heights and weights appear in Table 3. All results presented in this report are "adjusted" weight changes, i.e., the aforementioned factors have been considered. For example, if a child weighed 100 pounds prior to the program and 96 pounds after the program, the actual change in weight would be 4 pounds. But this child may have been expected to gain two pounds because of developmental growth, so the final weight of 96 pounds must be judged against the 102 pounds the child would be expected to weigh after the program. The adjusted weight change would be 6 pounds.

The data from this program have been analyzed with several dependent measures. These are change in body weight, change in percentage above ideal weight, and change in the Body Mass Index, (weight/height^2). Change in body

TABLE TWO

GROWTH STANDARDS FOR CHILDREN

*Height and weight of children 4-18 years of age**

Boys						
Age (years)	Height (inches)			Weight (pounds)		
	5th P†	50th P	95th P	5th P	50th P	95th P
4	38.3	40.8	43.3	30.0	36.1	42.2
5	40.3	43.4	46.4	33.0	40.3	47.6
6	42.8	45.9	49.0	36.0	44.7	53.4
7	44.8	48.1	51.4	40.3	50.9	61.5
8	45.9	50.5	54.1	44.4	57.4	70.4
9	48.5	52.6	56.8	48.0	64.4	80.4
10	50.6	54.9	59.2	51.4	71.4	91.4
11	51.9	56.4	60.9	53.3	78.9	102.5
12	53.5	58.6	63.7	60.0	86.0	113.5
13	55.2	61.3	67.4	65.3	98.6	131.9
14	57.5	64.1	70.7	75.5	111.8	148.1
15	61.0	66.9	72.8	88.0	124.3	160.6
16	63.5	68.9	74.0	97.8	133.5	169.8
17	65.2	69.8	74.4	106.5	139.8	174.0
18	65.9	70.2	74.5	110.3	144.8	179.3

*From Falkner, F.: Some physical growth standards for white North American children, Pediatrics 29:448, 1962.
†P = percentile.

(continued)

Table Two (continued)

Height and weight of children 4-18 years of age—cont'd

Ages (years)	Girls					
	Height (inches)			Weight (pounds)		
	5th P	50th P	95th P	5th P	50th P	95th P
4	38.1	40.7	43.3	25.8	36.1	43.4
5	40.6	43.4	46.2	32.2	40.9	49.6
6	42.9	45.9	49.0	35.5	45.7	55.9
7	44.5	47.8	51.1	38.5	51.0	63.7
8	46.4	50.0	53.6	42.0	58.2	72.4
9	48.2	52.2	56.2	45.1	63.6	82.1
10	49.9	54.5	59.1	48.2	71.0	95.0
11	51.9	57.0	62.1	55.4	82.0	108.6
12	54.1	59.5	64.9	63.0	94.4	124.9
13	57.1	62.2	66.5	72.8	105.5	135.2
14	58.5	63.1	67.7	83.0	112.0	144.0
15	59.5	63.6	68.1	89.5	120.0	150.5
16	59.6	64.1	65.4	95.1	123.0	150.1
17	60.1	64.2	65.3	97.9	125.6	153.7
18	60.1	64.4	65.7	96.0	126.2	156.4

Annual height gains (inches)			Annual weight gains (pounds)		
Boys	Age (years)	Girls	Boys	Age (years)	Girls
2.8	4	2.6	4.4	4	4.4
2.6	5	2.7	4.5	5	4.6
2.5	6	2.5	4.8	6	4.4
2.4	7	2.25	5.5	7	5.3
2.4	8	2.3	6.4	8	6.4
2.3	9	2.3	7.0	9	7.6
2.1	10	2.4	7.0	10	9.4
1.7	11	2.5	6.8	11	10.6
1.6	11½	—	7.4	11½	—
1.9	12	3.1	8.4	12	12.6
2.6	13	2.3	—	12½	13.3
3.0	13½	—	11.8	13	13.2
3.2	14	1.4	—	13½	—
3.4	14½	—	15.0	14	8.6
3.1	15	0.6	15.4	14½	—
2.0	16	0.3	10.4	15	4.4
0.9	17	0.1	6.8	16	2.8
0.4	18	0.0	6.6	17	0.7
			4.4	18	0.0

TABLE THREE

```
1                          S T A T I S T I C A L   A N A L Y S I S   S Y S T E M          13:52 THURSDAY, JANUARY 19, 1989

NOTE: THE JOB 50508 HAS BEEN RUN UNDER RELEASE 76.6C OF SAS AT UNI-COLL CORPORATION.

1          DATA ALL;
2          INPUT SUBJ 1-4 COUNTY 6-9 SCHOOL 11-13 TEACHER 15-18 GRADE 20-21 COND 23
3            SEX 25 AGE 27-28 INITWT 30-41 INITHT 43-47 FINALWT 50-61 FINALHT 63-67
4            TIME 69-70;
5          WTCH=FINALWT-INITWT; FINALWT
6          UPADJWTCH=WTCH;
7          HTCH=FINALHT-INITHT;
8          IF SEX=2 AND AGE=5 THEN M=.611;
9          IF SEX=2 AND AGE=6 THEN M=.644;
10         IF SEX=2 AND AGE=7 THEN M=.598;
11         IF SEX=2 AND AGE=8 THEN M=.649;
12         IF SEX=2 AND AGE=9 THEN M=.831;
13         IF SEX=2 AND AGE=10 THEN M=.981;
14         IF SEX=2 AND AGE=11 THEN M=1.064;
15         IF SEX=2 AND AGE=12 THEN M=1.021;
16         IF SEX=2 AND AGE=13 THEN M=1.653;
17         IF SEX=1 AND AGE=5 THEN M=.633;
18         IF SEX=1 AND AGE=6 THEN M=.648;
19         IF SEX=1 AND AGE=7 THEN M=.571;
20         IF SEX=1 AND AGE=8 THEN M=.671;
21         IF SEX=1 AND AGE=9 THEN M=.766;
22         IF SEX=1 AND AGE=10 THEN M=.831;
23         IF SEX=1 AND AGE=11 THEN M=1.05;
24         IF SEX=1 AND AGE=12 THEN M=1.11;
25         IF SEX=1 AND AGE=13 THEN M=1.134;
26         IF HTCH=.29 THEN UPADJWTCH=UPADJWTCH+(M*1.5);
27         IF HTCH=.5 THEN UPADJWTCH=UPADJWTCH+(M*2.5);
28         IF HTCH=.75 THEN UPADJWTCH=UPADJWTCH+(M*3.5);
29         IF HTCH=1.0 THEN UPADJWTCH=UPADJWTCH+(M*4.5);
30         IF HTCH=1.29 THEN UPADJWTCH=UPADJWTCH+(M*5.5);
31         IF HTCH=1.5 THEN UPADJWTCH=UPADJWTCH+(M*6.5);
32         IF HTCH=1.75 THEN UPADJWTCH=UPADJWTCH+(M*7.5);
33         IF HTCH=2.0 THEN UPADJWTCH=UPADJWTCH+(M*8.5);
34         IF HTCH=2.29 THEN UPADJWTCH=UPADJWTCH+(M*9.5);
35         IF HTCH=2.5 THEN UPADJWTCH=UPADJWTCH+(M*10.5);
36         IF HTCH=2.79 THEN UPADJWTCH=UPADJWTCH+(M*11.5);
37         IF HTCH=3.0 THEN UPADJWTCH=UPADJWTCH+(M*12.5);
38         IF SCHOOL=9 AND COND=2 THEN COND=1;
39         CARDS;

NOTE: MISSING VALUES WERE GENERATED AS A RESULT OF PERFORMING
      AN OPERATION ON MISSING VALUES.
      EACH PLACE IS GIVEN BY: (NUMBER OF TIMES) AT (LINE):(COLUMN).
      1 AT 5:6   1 AT 7:6   1 AT 27:22

NOTE: DATA SET WORK.ALL HAS 140 OBSERVATIONS AND 17 VARIABLES, 93 OBS/TRK.
NOTE: THE DATA STATEMENT USED 0.56 SECONDS AND 104K.

100        PROC SORT;BY SCHOOL COND SEX;

NOTE: DATA SET WORK.ALL HAS 140 OBSERVATIONS AND 17 VARIABLES, 93 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 2.04 SECONDS AND 133K.
```

Values For Adjusting Weights To Account For Developmental Growth

weight is the most informative measure and will be used hereafter. Analyses of Variance (ANOVA) have been used to compare the performance of population subgroups: paired t-tests have been used when appropriate. Correlational analyses have also been used to examine the relationship among specific variables.

Results, Treatment Conditions

The results will be presented to evaluate the effect of treatment condition, school, sex, and grade. There are several important interactions among these variables, a factor which will also be addressed.

The factor of most concern is that of treatment condition. The number of subjects in each condition, means, standard deviations, standard errors, minimums, maximums, and variances are presented in Table 4. The children in the Delayed Treatment condition, those not receiving treatment, had a mean adjusted weight gain of 1.8 pounds. This indicates that the average child, with no treatment, gained 1.8 pounds in excess of expected developmental weight gain. In comparison, the Nutrition Education children showed a mean adjusted weight loss of 2.8 pounds. Table 4 shows that the superiority of the Nutrition Education condition was highly statistically significant, at $p < .0001$. With a high degree of certainty, we can conclude that Nutrition Education was more effective at promoting weight loss than no treatment.

The data in Table 4 also indicate the large variability in the results. The children in the Delayed Treatment condition ranged from a weight loss of 10 pounds to a weight gain of 15.7 pounds. The children in the Nutrition Education condition ranged from a weight loss of 37.5 pounds to a weight gain of 12.9 pounds.

Condition 1 = Nutrition Education
" 2 = Delayed PE

Negative H_2 = weight gain
Positive H_2 = weight loss

Results, Schools

The mean adjusted weight changes and standard deviations for each school, listed according to treatment condition, are presented in Table 5. Several schools did not have subjects in both conditions. The contrast between Nutrition Education and Delayed Treatment is most striking in the Kate Smith School; Nutrition Education children lost an average of 3.7 pounds, the Delayed Treatment children gained an average of 1.14 pounds.

With only one exception, the children in all schools who were assigned to the Delayed Treatment condition showed a sizeable weight gain over and above what would be expected developmentally. With only one exception, children in each school assigned to Nutrition Education showed a weight loss. The most successful school was Tropic Isles, where the average children averaged 8.74 pounds lost, an exceptional rate of weight loss for children.

A scatter-plot diagram of the weight losses from children in each school is presented in Table 6. There is considerable overlap between Nutrition Education and Delayed Treatment across the different schools. In the Tropic Isles School, 18 of 21 children lost weight, and 14 of 21 lost more than 5 pounds.

Since boys may differ from girls in their rate of weight loss, the results for the two treatment conditions for each school have been prepared to allow an evaluation of sex as a factor (Table 7). In some cases, there were major differences between the sexes. In Cottondale School, for example, the girls in Delayed Treatment gained an average of 6.1 pounds while the boys gained only 1.7 pounds. When looking at the Nutrition Education subjects, the girls in Kate Smith school lost almost five times as much weight as the boys, but in Tropic Isles School, the boys lost more than four pounds more than the girls.

TABLE FIVE

Mean Adjusted Weight Changes in Pounds

School by Condition

School	Nutrition Education	Delayed Treatment
1. Lime Street		+1.72 ± 4.975 N = 39
2. Cottondale	+3.61 ± 4.497 N = 10	+5.19 ± 4.60 N = 5
3. High Springs		+1.78 ± 4.21 N = 7
4. Vero Beach	-0.5 ± 3.73 N = 13	-1.2 ± 0.66 N = 3
5. Shell	-0.82 ± 5.12 N = 19	
6. Vernon	-3.88 ± 1.99 N = 9	
7. Kate Smith	-3.74 ± 2.69 N = 3	+1.14 ± 1.45 N = 8
8. Lawnwood		+2.5 ± 2.83 N = 2
9. Tropic Isles	-8.47 ± 9.4 N = 21	

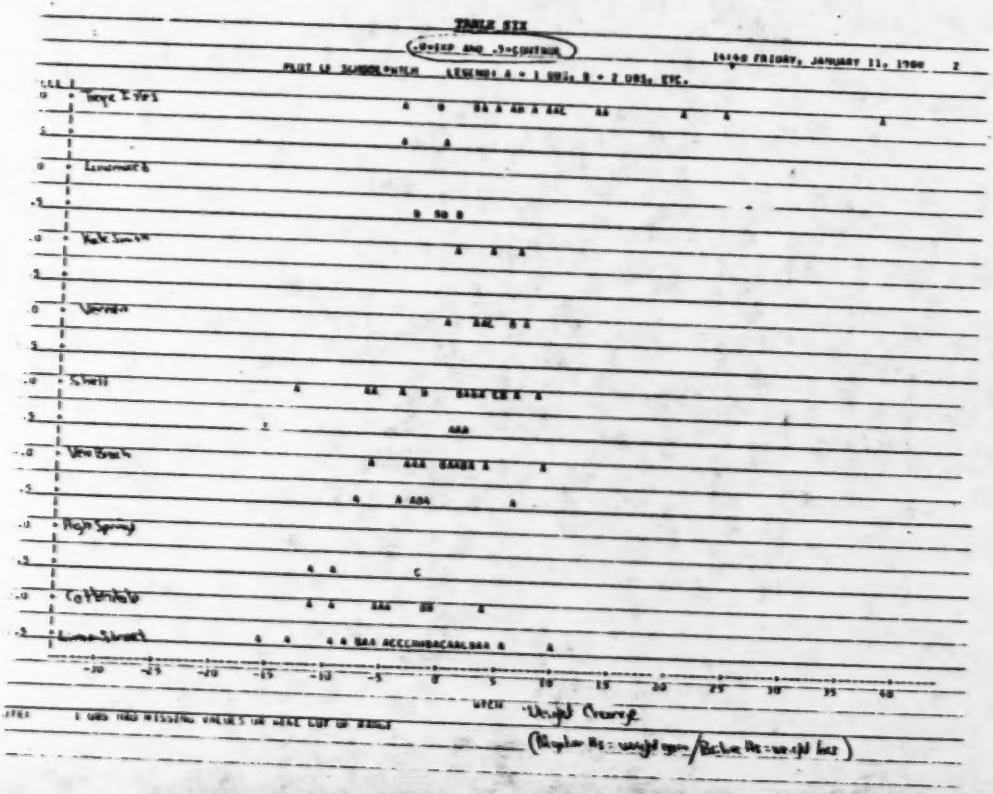


TABLE SIX
PLOT OF SCHOOLPANIA
FRIDAY, JANUARY 11, 1980
Wayne Twp
Lenamar's
Rob Smith
Shell
Joe Black
Maple Spring
Cottonbelt
Lone Street
-20
-15
-10
-5
0
5
10
15
20
25
30
35
40

130

136

TABLE SEVEN

Mean Adjusted Weight Changes in Pounds

School by Condition by Sex

School	Nutrition Education		Delayed Treatment	
	Boys	Girls	Boys	Girls
1. Lime Street			+0.92 ± 1.56 N = 14	+2.17 ± .89 N = 25
2. Cottondale	+3.89 ± 1.61 N = 3	+3.49 ± 1.99 N = 7	+1.72 N = 1	+6.06 ± 2.41 N = 4
3. High Springs			+2.48 ± .63 N = 3	+1.26 ± 2.9 N = 4
4. Vero Beach	-1.02 ± 1.24 N = 9	+0.66 ± 2.01 N = 4		-1.2 ± 0.38 N = ?
5. Shell	-0.11 ± 2.33 N = 4	-1.01 ± 1.45 N = 15		
6. Vernon	-3.15 ± .48 N = 2	-4.09 ± .84 N = 7		
7. Kate Smith	-0.93 N = 1	-5.15 ± 1.14 N = 2	-0.05 ± .63 N = 2	+1.54 ± .58 N = 6
8. Lawnwood			+4.5 N = 1	+0.5 N = 1
9. Tropic Isles	-6.34 ± 2.02 N = 11	-10.82 ± 1.68 N = 10		

Results, Grade

If Nutrition Education appears to be effective, it is important to determine the optimal age at which to introduce the nutrition principles. The results for the two treatment conditions for each grade are given in Table 8. Except for second grade children, who showed a very small weight loss, children in all grades assigned to Delayed Treatment gained weight. For Nutrition Education, children in each grade except second and sixth lost weight. It would appear from the data in Table 8 that the older children are more successful with the program than are younger children, yet the sixth grade students gained weight. However, there were a small number (4) of sixth grade students in the program and it is difficult to draw conclusions from their results.

A scatter-plot diagram showing weight changes for Nutrition Education and Delayed Treatment subjects in each grade is provided in Table 9. The most successful subjects are in the upper grades, but the least successful students are distributed among all the grades. To determine whether boys and girls differed among the grades, a table has been prepared presenting adjusted weight changes for grade by condition by sex (Table 10). The fourth grade girls given Nutrition Education were the most successful (loss of 15.3 pounds) whereas the sixth grade boys given Delayed Treatment were the least successful (gain of 9.3 pounds). Again, the small numbers for these groups, 3 and 2 subjects respectively, makes it difficult to draw conclusions from their weight changes. The girls appeard to fare better than the boys in nearly every grade, but the differences were very small and were not statistically significant.

TABLE EIGHT

Mean Adjusted Weight Changes in Pounds

Grade by Condition

	Nutrition Education	Delayed Treatment
0. Kindergarten	-0.45 ± 4.1 N = 12	+1.82 N = 1
1. First Grade	-2.3 ± 6.8 N = 11	+2.1 ± 1.6 N = 7
2. Second Grade	+0.73 ± 6.4 N = 7	-0.22 ± 1.6 N = 6
3. Third Grade	-1.55 ± 3.89 N = 12	+0.32 ± 1.3 N = 9
4. Fourth Grade	-8.87 ± 13.3 N = 7	+2.4 ± 7.7 N = 12
5. Fifth Grade	-4.95 ± 7.2 N = 22	+1.69 ± 4.1 N = 17
6. Sixth Grade	+1.15 ± 6.45 N = 4	+2.84 ± 4.78 N = 9

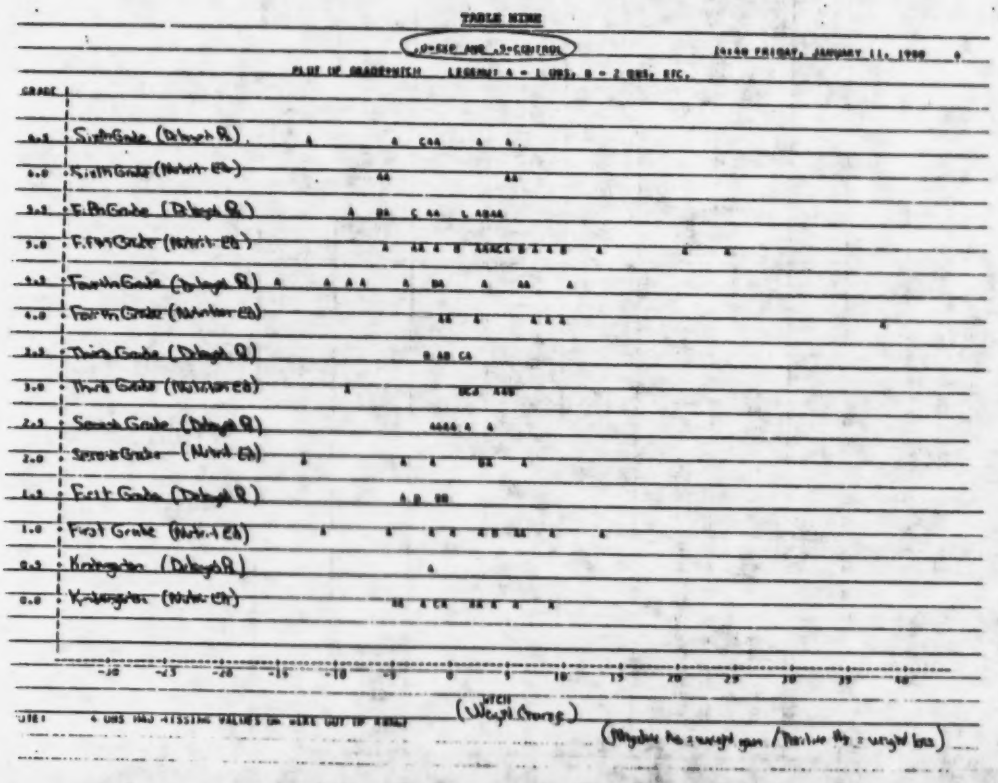


TABLE NINE
1=EXP AND 2=CONTROL
PLOT OF GRADE*WITH LEGEND: A = 1 OBS, B = 2 OBS, ETC.
GRADE
Sixth Grade (Dbaugh R)
Sixth Grade (Nobuk-Elk)
5.Fifth Grade (Dbaugh R)
5.0 Fifth Grade (Nobuk-Elk)
4.5 Fourth Grade (Dbaugh R)
4.0 Fourth Grade (Nobuk-Elk)
3.5 Third Grade (Dbaugh R)
3.0 Third Grade (Nobuk-Elk)
2.5 Second Grade (Dbaugh R)
2.0 Second Grade (Nobuk-Elk)
1.5 First Grade (Dbaugh R)
1.0 First Grade (Nobuk-Elk)
0.5 Kindergarten (Dbaugh R)
0.0 Kindergarten (Nobuk-Elk)
-30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40
WITH
(Weight Change)
(Negative has a weight gain / Positive has a weight loss)

TABLE TEN

Mean Adjusted Weight Changes in Pounds

Grade by Condition by Sex

	Nutrition Education		Delayed Treatment	
	Boys	Girls	Boys	Girls
0. Kindergarten	+0.43 ± 5.1 N = 6	-1.33 ± 2.8 N = 6		+1.82 N = 1
1. First Grade	-1.81 ± 5.3 N = 5	-2.63 ± 8.3 N = 6	+2.34 ± 2.8 N = 2	+1.9 ± 1.3 N = 5
2. Second Grade		+0.73 ± 6.4 N = 7	-0.26 ± 1.9 N = 4	-0.13 ± 1.58 N = 2
3. Third Grade	-1.18 ± 0.3 N = 5	-1.8 ± 5.2 N = 7	+0.78 ± 2.06 N = 2	+0.45 ± 1.2 N = 7
4. Fourth Grade	-4.08 ± 4.1 N = 4	-15.3 ± 19.9 N = 3	+0.99 ± 3.6 N = 5	+4.85 ± 8.3 N = 7
5. Fifth Grade	-5.86 ± 7.23 N = 9	-4.33 N = 13	+0.48 N = 4	+3.07 ± 3.4 N = 13
6. Sixth Grade	+6.5 N = 1	-0.63 ± 8.6 N = 3	+9.3 ± 4.99 N = 2	+0.98 ± 2.86 N = 7

Results, Sex

The summary data for boys and girls for each treatment condition are presented in Table 11. Boys in the Nutrition Education condition (N=30) lost an aver[illegible] of 2.5 pounds, and the girls in the Nutrition Education condition (N=45) lost an average of 3.01 pounds. For Delayed Treatment subjects, the boys (N=21) averaged a weight gain of 1.3 pounds and the girls averaged a weight gain of 2.08 pounds.

Boys were not more or less successful than girls in this program. However, it is apparent that several factors other than sex influence weight loss. Since grade and school have an effect, a study with a much larger sample would be necessary to test for the separate effects of each of these factors. For example, Table 11 shows that the mean age for Nutrition Education subjects was more than one full year less than the mean age for the Delayed Treatment subjects. Since the older children tended to do better, a statistical comparison of the treatment conditions would need to account for differences in age. This is difficult to accomplish with a relatively small sample of subjects.

The Tropic Isles School--A Special Case

The Tropic Isles School was the most successful. In fact, the average weight loss (8.47 pounds) was more than double the average weight loss in the next most successful school (3.88 pounds). As mentioned earlier, 18 of the 21 children receiving Nutrition Education at Tropic Isles School lost weight. One child, an 11-year-old girl in the fourth grade, lost 37.5 pounds. The average weight loss of 8.47 pounds is striking, given that the program was of limited duration, and the loss of 37.5 pounds is remarkable.

TABLE ELEVEN

Mean Adjusted Weight Loss in Pounds

Condition by Sex

	Boys	Girls
Nutrition Education	-2.5 ± 5.78 N = 30	-3.01 ± 8.17 N = 45
Delayed Treatment	+1.26 ± 4.8 N = 21	+2.08 ± 4.3 N = 43

	Mean Age	Range
Nutrition Education - Boys	8.6	5-12
Nutrition Education - Girls	8.5	5-12
Delayed Treatment - Boys	9.8	6-13
Delayed Treatment - Girls	9.9	6-13

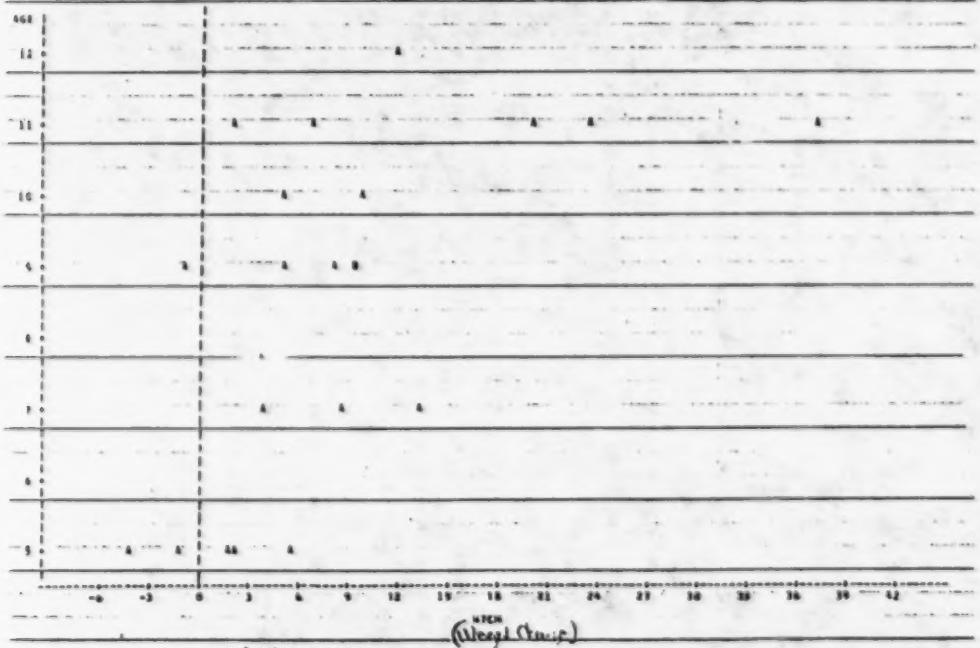
A scatter-plot diagram of the weight changes by grade for the children in the Tropic Isles school is presented in Table 12. There is a clear effect of age on weight loss in this school. The least successful children were in the early grades, and as the age of the children increased, the magnitude of weight loss increased. Two of the three children who gained weight were in kindergarten, and the three most successful subjects were in the fourth grade. The correlation between age and weight loss in the Tropic Isles School was 0.57, $p < .0075$.

Tropic Isles Elementary School

TABLE TWELVE

STATISTICAL ANALYSIS SYSTEM 9:09 FRIDAY, JANUARY 11, 1980 6

PLOT OF AGEMONTH LEGEND: A = 1 OBS, B = 2 OBS, ETC.



Physician Rx = weight gain
Dietician Rx = weight loss

Discussion

Obesity in adults is one of the most prevalent and serious disorders of modern mankind. The United States Senate Subcommittee on Nutrition and Human Needs has labeled obesity the number one nutrition problem in America. The problem in children is equally disturbing. At least 25% of all children are overweight, and 80% of obese children become obese adults. Obesity is strongly associated with serious medical disorders, including hypertension, hypercholesterolemia, diabetes, and coronary heart disease. Even more important for the obese child is the social and emotional price he or she pays for excess body weight. The obese child is at high risk for disturbances in psychosexual development, body image, interactions with peers, and relationships within the family.

Despite the prevalence and seriousness of obesity, surprisingly few resources have been devoted to its management. The program described in this report is an innovative one, and is one that has yielded valuable information on the treatment of overweight children. Yet, the program was conducted on a limited budget and there are no plans to follow-through on the promising results. In the State of Florida, and any other state, obesity affects more children than any other nutrition problem and the the consequences of obesity are far-ranging and disabling. The reluctance to confront the problem is common but troubling.

The program outlined in this report is one the largest controlled programs on childhood obesity ever to be completed. Its most important characteristics are the care with which the program was implemented and the rigor

with which it has been evaluated. A wealth of information has been collected and a clear picture has emerged about the effectiveness of a nutrition education program for overweight children. However, this program is only the first step in what [illegible] be a systematic sequence of program trials before a remedy can be found. The results of this program indicate that progress has been made, but an answer will await further work.

This program tested the effectiveness of a nutrition education program. It was compared to no-treatment in a controlled trial in nine elementary schools. One hundred and thirty nine children completed the program; 75 received the Nutrition Education program and 64 were in the Delayed Treatment comparison condition. The average child was in the program for 12 weeks.

Interpreting weight changes in children is a difficult task because their "ideal" weight changes as they grow. The analyses for this program, however, were done with the aid of a computer program that accounted for each child's sex, age, height, and developmental growth. The average child in the Nutrition Education program lost 2.8 pounds and the average child receiving no treatment gained 1.8 pounds in excess of developmental growth. This latter statistic is informative, because the no-treatment children actually became more overweight in the span of 12 weeks. This confirms the notion that overweight children will not "grow out" of their problem if left untreated.

The average weight loss of 2.8 pounds for Nutrition Education children is promising but not sufficient. The loss compares favorably with the results from other programs, particularly when considering the limited duration of the program and the low cost. There were no differences in the responses of

boys and girls, but age seemed to play an important role in some schools; older children responded better than younger children.

The experience of one school, Tropic Isles, is very informative. Programs of [illegible] nature are not likely to be administered uniformly among schools. Some will show great enthusiasm and others will have little interest. The staff at the Tropic Isles School implemented the program with many clever and innovative ideas. One person served as a program coordinator, awards ceremonies were held, the children received ribbons and other acknowledgements for success, and so forth. Consequently, the average weight loss at Tropic Isles was more than double that of the next most successful school. We have learned several ways of encouraging this enthusiasm. This underscores the importance of testing programs and learning from the experience of each trial.

One additional factor has emerged from this program. Nutrition education in the form of booklets and informational guides, no matter how well designed, will probably have little impact on obesity in children. Involvement of the child's social system is crucial. This includes teachers, parents, peers, physical education instructors, school food service personnel, and so forth. These persons must be trained in specific methods to encourage changes in eating and exercise behaviors in the children. This training is not difficult to administer and most persons are grateful for any assistance available for this tenacious problem. Overweight children and their parents cannot read their way free of obesity.

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To:

RE: Proposal For School-Based
Weight Control Program

This program will implement the recommendations from the previous research findings by Drs. Kaye and Brounell and include present clinical research/experience by Dr. Kaye.

In the past three years since the school-based Weight Control Program was terminated numerous other school systems both national and international (Australia, Canada) have used our materials and methodology to try to solve this continual problem of obesity in children. It is evident the school setting, being controlled, is a realistic envirement to help children lose weight on a long term basis by: improving their self-image, changing eating and exercise behaviors.

Additionally, by involving the parents through coordinated adult evening nutritional weight loss classes, the carry-over from the school to the home can be accomplished.

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It is evident that long term weight loss cannot occur without the child's family being involved in the process.

Today, there are improved methods which can be facilitated at the school to help the child help himself to alter adverse eating, snacking and exercise habits.

The goal of this new program is to accomplish the original task of the school-based weight control program which is to create a transportable school-based weight control program which every school in Florida could implement when needed.

This new program would test the necessary changes while including the methods which worked in the original program. Some of the changes are:

1. Include certain specific behavior changes to help slow down eating, control snacking, improve self-image and create routines.
2. Write a new student guide with these behavior changes.
3. Write a new coordinator's guide on how to weekly implement new behavior changes in the student at school.
4. Write a guide for the adult nutritional weight loss class coordinated with the school program (the parents will learn and practice what the child will learn at school).

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5. A diet with specific food amounts to follow (weighing and measuring foods). The diet will be a well-balanced, complex carbohydrate, protein for growth, low fat diet following the meal plan.

6. Update the school's step by step approach to the weight program. Each step would be coordinated with the adult/parent weight loss class.

7. Routines mentioned in number 1 would include regular meals (no skipping breakfast), family exercise times, i.e. walking after dinner for thirty minutes, class meetings.

8. Splurge Meal - twenty meals a week eaten on the diet, one meal a week as the reward meal, everyone goes off the diet and back on the following meal.

9. The Coordinator Program - identified as a method an individual will be appointed by the principal on a volunteer basis to lead the weight control program in each school. The difference between the proposed and past program, the volunteer coordinator would also be a concerned parent or grandparent with teaching skills.

The potential in each school is unlimited. Cost is nominal. The volunteer coordinator uses our weight loss structured materials in a step by step or "how to" approach. The state NET Lending Library would be available for additional resource materials. Each school/school district usually

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maintains a network of volunteers.

The project, consisting of a twelve week weight loss program, would be implemented in four elementary schools in Leon County. It is our attention to begin the program simultaneously in all four schools, end the weight loss program, evaluate, make necessary changes and re-implement the program for another twelve weeks, evaluate and report findings. Hopefully, following the end of the second session a final product would be ready to disseminate to Florida schools at their request.

Given that the project is successful, the researcher would request the Department of Education, Food Nutrition Section, to take responsibility and devise a method of alerting the schools that this program is available and give a specific person, in Food Nutrition Section, the continued responsibility to disseminate the program itself.

Senator HAWKINS. I thank all of you for your expert testimony, and I hope that educators are listening.

Thank you.

[Whereupon, at 10:53 a m., the subcommittee was adjourned.]